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The MILITARY REVIEW, official publication of the United States Army and the United States Army Command and General Staff College, disseminates modern military thought and current Army doctrine concerning command and staff procedures of the division and higher echelons and provides a forum for articles which stimulate military thinking. Authors, civilian and military alike, are encouraged to submit articles which will assist in the fulfillment of this mission.

POLICY.

Unless otherwise indicated, the views expressed in the original articles in this magazine are those of the individual authors and not those of the Department of the Army or the United States Army Command and General Staff College.

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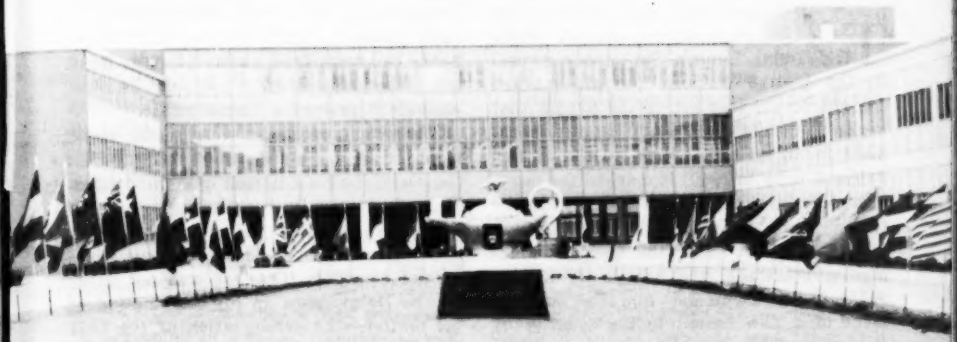
FIRST ANNIVERSARY OF BELL HALL

U. S. Army Command and General Staff College



The date of 14 January 1959 represents a significant milestone in the history of the U. S. Army Command and General Staff College. It was on this date that the Secretary of the Army, the Honorable Wilber M. Brucker, dedicated J. Franklin Bell Hall, the College's new academic building.

The objective of the College has been and must continue to be the *full development* of the mental, moral, psychological, and physical aspects of the student officers attending courses of instruction in this modern educational facility. Never before has the requirement for military problem-solvers and decision-makers been so acute as today. As our technology moves forward at unprecedented speed, so must our thinking and, therefore, our educational processes be geared to the same advanced pace.

Bell Hall is but another step forward in the Army's program to combine a forward-looking educational philosophy and approach and a modern educational facility for the purpose of ensuring *informed leaders* for our military forces—leaders who can *plan logically* and *react decisively*. It is our duty at Leavenworth to produce military leaders who are able, not only to stay abreast of the accelerated present-day scientific pace, but officers who have the "mental mobility" to surpass this pace and thereby *lead technology* rather than merely react to it.

The Command and General Staff College rededicates itself to continue its traditional role of educating military leaders in the interests of National and Free World security and in emphasizing the full development of MAN—the only constant in the changing equation of battlefield success.

LIONEL C. McGARR
Major General, USA
Commandant

On the Roof of the World

O. Edmund Clubb

THE Dalai Lama's September appeal to the United Nations for aid marked the end of the last act of the drama that began to unfold when the Tibetan Government made its first appeal to that international body in 1950. It marked the death of the Dalai's hope to be able to change the course of events in Tibet by withdrawing his support from the Chinese Communist overlords, the advent of a new order in his homeland, and the development of a new threat to the security of India's northern frontiers.

This last act began with the revolt at Lhasa in March.

According to the Dalai Lama's own account of the March affair, made public after he took refuge in India at the end of the month, Lhasa's populace had been apprehensive that harm might come to the Dalai if he attended a cultural show being given at the Chinese Lhasa headquarters on 10 March. A crowd gathered around his summer palace, "and physically prevented the Dalai Lama from attending the function." When Red Chinese reinforcements arrived in the area (presumably several days later), and "two or three mortar shells were fired in the direction of the Norbulingka [summer] palace," the Dalai Lama escaped from Lhasa.

That was on 17 March. The armed revolt aimed at assisting the Dalai Lama's escape involved a total of approximately 20,000 Tibetans and was suppressed within a few days. Although some of the participants had come from as far away as Eastern Tibet, the March uprising had remained in essence a Lhasa affair.

The people of Lhasa were set in movement, in sum, because they thought that the Dalai Lama's person was in danger. There had actually been brought out into the open a clash of wills between the Tibetan Government and its Chinese Communist overlords. One act was not noted by the Dalai Lama in his explanation of the matter—the denunciation of the 1951 Sino-Tibetan agreement and a declaration of Tibetan independence that issued from the Norbulingka palace on 12 March.

The Chinese Communist rule in Tibet had been challenged. The Dalai Lama's martyrdom would have created awkward problems in foreign relations for the Peking Government; his self-effacement from the Tibetan political scene, contrariwise, would in net facilitate the carrying out of the over-all Chinese program for integrating Tibet with the body politic of Red China.

Early 20th Century

The present fate of Tibet has, in fact, long been foreshadowed in the ambitions of Chinese nationalism. That country entered the 20th century in the character of a buffer zone between expanding British and Russian Empires. The weakening of the suzerain Manchu power in Peking had brought about a parallel enfeebling of Manchu authority over its Tibetan vassal, so that Tibet, that high plateau so aptly

Red China's overthrow of self-government in Tibet has resulted in an increased Communist threat to India and other free states through consolidation of Communist China's position in this area of the world

called "the roof of the world," promised to become as well an independent buffer state between India and China. The Tibetans, although conquered variously by the Mongols and Manchus when those hard-fighting peoples ruled China, had never ceased to strive to recover their freedom. And when the Chinese Revolution of 1911 brought an end to the Manchu rule, the Tibetan Government, following the example set by Outer Mongolia, announced the independence of Tibet.

The theocracy that ruled Tibet, desirous chiefly of barring the country to all of the outside world, then went on to balk a difficult choice. The 19th century had seen the progressive breakdown of oriental exclusionism; the 20th century was witnessing the beginning of a transformation of vassal countries into either independent states or integral parts of the suzerain power. China, if engulfed temporarily in civil turbulence, possessed a manifest potential for expansion, with greater thrust than ever when reunified.

Outer Mongolia underwent a Communist revolution in 1921, and the Soviet aegis promptly was extended over it. Tibet had either to establish strong foreign ties, however dangerous, for the support of a position of independence, or to face up to reconquest at the hands of China at such time as the Chinese people turned from intramural quarrels back to national aggrandizement. The Tibetan leadership thought to find safety still in the simple exclusionism that had previously failed China, Japan, and Korea.

Chinese Claims

Tibet, in the long run, would not be preserved by this refusal to face the issues of a new era. All Chinese Governments since the founding of the Republic in 1912 have alike claimed that country as China's own. The significance for Tibet of the reunification of Chinese power consequent upon the Communist victory of 1949 became immediately apparent. The 9th Panchen Lama had fled from Tibet to China in 1923 after losing a power struggle with the 13th Dalai Lama and died in exile in 1937; the Panchen's 10th incarnation was discovered in Chinese-controlled territory in 1941, but he had never been able to proceed to Lhasa. Now the conquering Communist armies swept him up among their war booty. Child though he was, on 24 November 1949 he precociously announced his adherence to the Peking regime and promised to help "liberate" Tibet.

The consequences of Tibet's earlier failure to obtain recognition of an independent status for itself were now visited upon the Dalai Lama's government. The Tibetan appeal of 7 November 1950 for help in the face of the threatened "liberation" won no support, and the Dalai's regime was forced to capitulate. The pertinent Sino-Tibetan agreement of 23 May 1951 provided in particular for Tibetan "regional autonomy" and noninterference with "the established status, functions and powers of the Dalai Lama." It also contained a promise that, as regards reforms in Tibet, "there will be no compulsion on the part of the central [Chinese] authorities." It was on the basis of such commitments that Tibet, under military threat, permitted itself to be "peaceably liberated." Units of the Chi-

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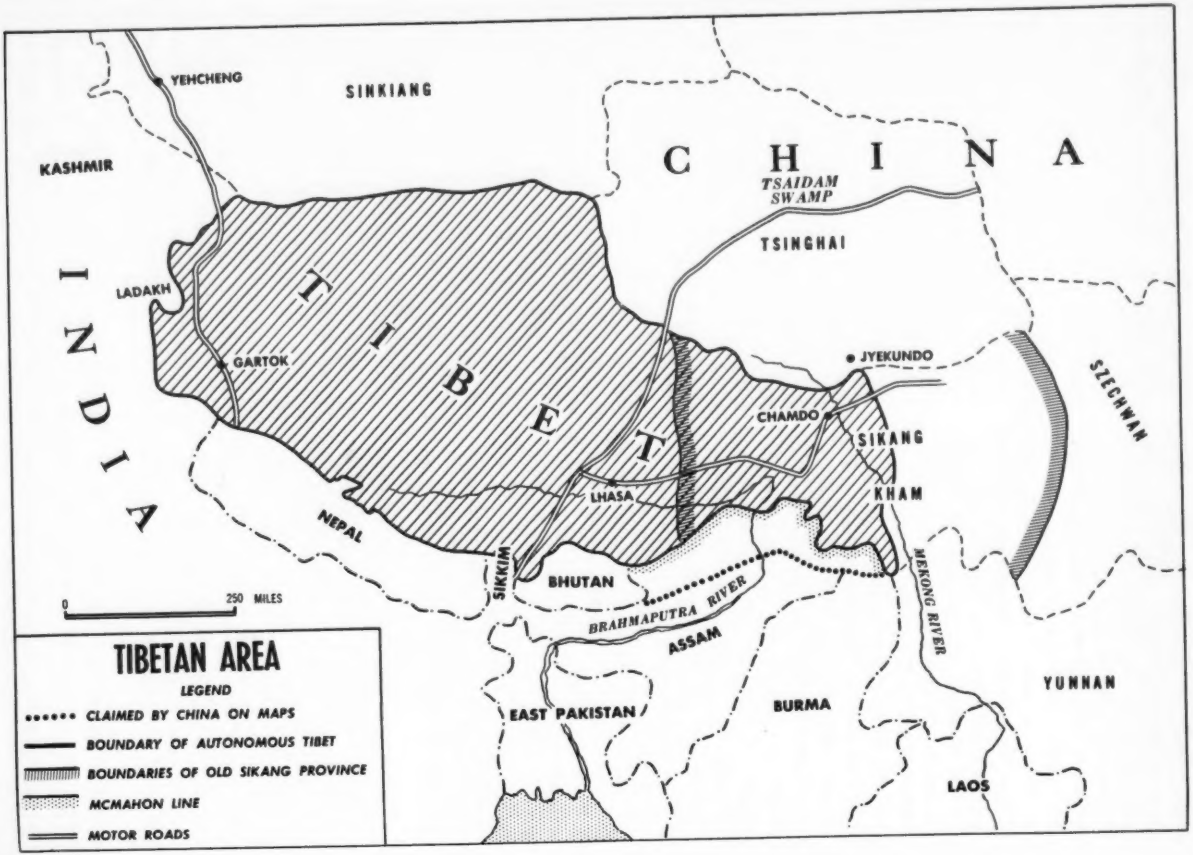
YEHCHENG
SINKIANG
KASHMIR
C H I N A
TSAIDAM SWAMP
TSINGHAI
LADAKH
I N D I A
T I B E T
GARTOK
JYEKUNDO
SZECHWAN
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BRAHMAPUTRA RIVER
ASSAM
YUNNAN
EAST PAKISTAN
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LAOS
0 250 MILES
TIBETAN AREA
LEGEND
CLAIMED BY CHINA ON MAPS
BOUNDARY OF AUTONOMOUS TIBET
BOUNDARIES OF OLD SIKANG PROVINCE
MCMAHON LINE
MOTOR ROADS

nese Communist Army entered Lhasa in October 1951.

The Dalai Lama would have had to forget the experiences of his previous 13 incarnations if he took Peking's pledges at their face value. History gave Lhasa no reason to look to Peking for respect of the Tibetan desire for privacy and a perpetuation of the Lamaist theocracy. Peking had too obvious an interest in strategic factors, natural resources, and the fullest possible exploitation of sparsely populated lands as *Lebensraum* for the exploding Chinese population, for any Tibetan ruler to assume Red Chinese adherence to conflicting commitments. Nor could India, which in April 1954 signed a separate agreement with Communist China regarding Tibet, have logically considered on the basis of past experience that Peking would permit Tibet to enjoy the same measure of autonomy it possessed at the time of Manchu decadence.

Becomes an Autonomous Region

In theory, Tibet was to be made into a self-governing political entity—the Tibetan Autonomous Region. A Preparatory Committee was established in April 1956 to get the nation ready for that "autonomy." The Dalai Lama was its titular head, as chairman. But the Panchen Lama had been reinstalled in his traditional seat of power at Shigatse in 1952, and his authority was being built up—while that of the Dalai was steadily being whittled down. The top authority in Lhasa resided in the persons of General Chang Ching-wu, chief of the Peking Government's Lhasa office, and General Chang Kuo-hua, Commander in Chief of the Red Chinese forces in Tibet. The Chinese Constitution states solemnly that all "nationalities" are equal in Communist China; but in practice the Han Chinese provide the supreme leadership —even in "autonomous" areas.

So the Hans quickly undertook to impose *their* pattern on Tibet. Modern enterprise was introduced into the chief towns, with extension of Chinese control over the purchase of Tibetan commodities. The Chinese began geological exploration (no doubt attended by other types of intelligence gathering) and initiated a new system of education for "socialist reforms." Even as previously in the Sinkiang-Uighur Autonomous Region, the Chinese Communist armed forces embarked upon various agricultural projects.

Racial Unification

Peking's program for "racial unification" was of special importance. In earlier decades China had poured teeming millions of peasants into Manchuria and Inner Mongolia, thereby quite inundating the Manchus and Mongols who once inhabited those lands. Shortly after the "liberation" of Sinkiang in 1949, Peking began to move Chinese migrants into that sparsely settled Turki land. That it was planned to do the same in Tibet was shown by Mao Tse-tung's announcement in 1952 to a visiting Tibetan delegation that Tibet's population should be increased to approximately six million, then to 10 million. Since the total number of Tibetans, even including those residing in sometime Eastern Tibet (latter-day Sikang and Tsinghai), only approximates 2.8 million, it is evident that a population of 10 million for the country would probably be at least two-thirds Chinese in composition—where it has been 98 percent Tibetan. In Peking's terms, Tibet would constitute a catch-basin for a Han population bursting out through China's seams; and "racial unification" would mean rapid Han assimilation of the Tibetan "minority."

The program was pressed hardest, at first, in certain border areas, with the reported migration of hundreds of thousands of Chinese into what was formerly Eastern Tibet. The development was carried deeper, into Tibet Proper, where Chinese began to appear in increasing numbers in the major towns. *The Eastern Economist* (New

Delhi) in March 1959 described the general process:

. . . Peking has ruthlessly tried to colonize Tibet with Chinese settlers, officials and soldiers in the familiar pattern of infiltration, indoctrination and domination.

1956 Revolt

The Chinese invasion of Tibetan lands, widespread billeting of soldiers and migrants on the local citizenry, the closure of a number of monasteries, introduction of new taxation, attempts at mass indoctrination of Tibetans in Peking's social philosophy, and the severe reduction of the Dalai Lama's temporal power—all in violation of the letter and spirit of the 1951 agreement—naturally generated Tibetan resistance.

Even as in Sinkiang, there were in Tibet manifestations of what Peking terms "local nationalism." The Goloks (a warlike but minor tribe of about 40,000 people) clashed with Chinese Communist military units in the spring of 1956. A few months later the Khampas, another Eastern Tibetan tribe, followed them into revolt, and there was a flight of Tibetans westward out of the path of the invading Chinese migrants. The Tibetan resistance had enough force to cause the Chinese to close schools, withdraw some troops and official personnel, and soothe Tibetan feelings to the degree that the Dalai Lama, visiting in India on the occasion of the 2,500th birthday of Buddha, decided to return to Lhasa. In March 1957, General Chang Kuo-hua officially announced that Socialist reforms in Tibet would be postponed through 1962.

But other developments were in course. Airfields had been leveled out on Tibet's high plateau. The Tsaidam-Lhasa and Chamdo-Lhasa motor highways had both been completed in 1956; the Yehcheng-Gartok highway, which took 19 months to build, was completed in the fall of 1957. The Chinese had completed a major communications network penetrating Tibet from the east and north. They possessed military forces on the ground in Tibet capable of dealing with any military threat the Tibetans might offer. Peking was thus ready to meet the issue of Tibetan intransigence head-on.

Policy Changes

In general, Peking had shown a liberal attitude regarding the general question of "autonomy" through 1956: there would be no more of that "Han domination" of national minorities that had occurred so often in China's imperialist past. In 1957, however, in the face of a growing demand from the major minorities for the substance as well as the name of self-rule, Peking began to attack "local nationalism" as "the most dangerous ideological trend of the present time." The Red Chinese retreat in Tibet halted.

April 1958 saw a significant straw in the wind: Peking protested to the Nepal Government against the alleged movement of arms across the Nepalese-Tibetan frontier. The Khampas, numbering about 8,000, had shifted their theater of operations to southern Tibet. Lacking an appropriate political motivation, theirs was not a resistance movement of the type known in occupied Europe in World War II; nevertheless, in July 1958 they demanded the withdrawal of the Chinese from Tibet. At the same time, it had become clear that the Dalai Lama, seated in Lhasa, constituted the major obstacle to the full—and speedy—implementation of Peking's program for Tibet. It hardly can be doubted that Peking had carefully assessed the situation and made its dispositions accordingly.

This, then, was the prelude to the political upheaval that took place at Lhasa last March—with the Khampas participating. Given the Dalai Lama's key position in the power struggle, it seems entirely possible that the Chinese Communists gladly reconciled themselves to his becoming involved in the Khampa revolt. The ruling Tibetan hierarchy, for its part, seems to have assumed that the Dalai's

role was so important in the scheme of things that his departure would bring the entire structure down about Chinese ears.

Certain historical precedents, on the contrary, indicated that the Chinese could govern Tibet readily without the aid of the Dalai Lama. After all, the Dalai Lama in 1904 had fled from Lhasa to Outer Mongolia before the advance of a small British contingent from India, and in 1910 had withdrawn from Lhasa to India to escape the vengeful army of the Chinese General Chao Erh-feng, without subsequently being able to exert a critical influence on the Tibetan situation from exile.

Local Government Dissolved

A Tibetan resistance that never crystallized in 1950 could not have been expected to materialize in 1959. The shape of the future was not long in being discovered. On 28 March, after the uprising in Lhasa had been suppressed, the Peking State Council ordered the dissolution of the Tibetan Local Government (that is, the Dalai Lama's administrative apparatus), with transfer of its powers and functions to the Preparatory Committee. The Panchen Lama was to act as chairman of that committee in the absence of the Dalai Lama. The substitution of the "tame" Panchen for the absent Dalai Lama was now feasible.

Tibet also was confronted with the prospect of fundamental social changes. Peking's 28 March order expressed the hope that the Preparatory Committee, besides assisting in suppression of the rebellion and protecting "the interests of the people of all nationalities" (which was to say, the interests of the Chinese in particular), would "strive for the building of a new and socialist Tibet." The full significance of the Chinese moves is seen in Premier Chou En-lai's prediction, made on 14 April at a banquet given for the Panchen Lama in Peking, that Tibet would proceed rapidly toward autonomy under the Panchen's leadership. Chou went on: "But the obstinate Tibetan reactionaries have chosen the way of treason against the people and the country. *In destroying themselves they have created conditions extremely favorable for the democratization of Tibet.*" (Emphasis added.)

Chinese Power Consolidated

We may now sum up the evident consequences. The old order in Tibet is being replaced by a new one—the Chinese Communist order. "Socialist reforms," previously deferred, will no longer wait. Tibetan "autonomy," when it comes, will in all probability have—as the Chinese phrase puts it—"the name without the substance." Chinese Communist power has been consolidated on "the roof of the world," at the expense of the Tibetan theocracy. The March revolt only hastened the process.

The portents for the future of the Dalai Lama, within the context of the Tibetan development, are inauspicious. The Communist-led process that in 1924 transformed Outer Mongolia into the Mongolian People's Republic established what may be a historical precedent. When the Mongolian Khutukhtu, or Living Buddha, died that same year, the last incarnation died with him: no further incarnation was "discovered." An old Tibetan legend had it that the 13th Dalai Lama would be the last of the line. The present Dalai is the 14th. Yet under present conditions if he ever returned to Tibet, it would be without real political authority.

Red China has reaped some political disadvantage in South and Southeast Asia as a result of her patent violation of the principle of self-determination in Tibet and the flight of the Dalai Lama. The camaraderie of contemporary nationalism had inclined the inhabitants of that part of the world, in the postwar period, to see the Chinese as "fellow-Asians" who had suffered, like the rest of them, certain disabilities at the hands of colonial powers. Some of that sympathy now has been dissipated.

The importance of the factor of disillusionment should not be overestimated: age-old memories of China's long imperialistic past doubtless have been in the back of many Asian minds all along. The factor of major importance in the situation is that, as is now being realized by South Asian leaders, the day of reckoning with Chinese political power has come uncomfortably close with the tidal surge of the Chinese Communist nation into Tibet.

This shift in the balance of power has major significance for Sino-Indian relations in particular. Tibet is no longer a buffer state between the two countries. Instead it is an advanced salient of Red China, towering threateningly over the Indian subcontinent.

The reality of the threat is demonstrated in the circumstance that, after the Lhasa uprising, tensions began to build up along the Indian-Tibetan frontier, with various Chinese Communist incursions into territory heretofore regarded as Indian. A White Paper issued in New Delhi on 7 September revealed the seriousness of the matter. It was disclosed that Peking had categorically challenged the validity of the so-called McMahon Line, fixed in accordance with the Anglo-Tibetan Simla Convention of 1914 to constitute approximately 850 miles of border between northeastern India and Tibet. (The Chinese delegate at Simla initialed the convention, but the Chinese Government of that period refused to ratify it.)

Peking's claim, as indicated by various Chinese maps, seemingly skirts the northern edge of the Brahmaputra Valley and, if effected, would cut off northern Assam and give the Chinese entrance to the plain.

To the east, northern Burma similarly comes under challenge; on the west, the Chinese have long claimed Ladakh, in Kashmir, to be a part of Tibet. Moreover, if the Manchu Throne once claimed suzerainty over Tibet, Tibet itself over long periods maintained close relations with Nepal, Sikkim, and Bhutan. Those three states, all of which contain various Tibetan ethnological and cultural elements, constitute a remnant barrier between India and the Red Chinese colossus. Their chief political ties are with India at present; but the Chinese interest in all three has already been made manifest. Sino-Indian relations seem now to be entering a new stage.

Conclusions

A cautious estimate must, of necessity, involve the assumption that Peking proposes in due course to extend the Chinese Communist influence south to the Indian Ocean *regardless* of whether this leads to clashes with certain Bandung powers. Border questions, the position of Chinese overseas communities, military alliances, and trade matters, all alike bear the potential for future trouble.

Here, it is to be noted that the Communist regime has been in power in China for a full decade, and has substantially consolidated its political position, whereas various South Asian governments remain weak and vulnerable to attacks from strong political forces. If the Peking strategists calculate that "bourgeois nationalist" governments in South Asia will be facing critical economic and social problems in the next few years (and the speculation can hardly be deemed fantastic), they may well be ready now to accept some worsening of relations with those governments in anticipation of a recrudescence of radical movements lending themselves to Communist exploitation.

Indian Ambassador K. M. Panikkar, writing on *Geographical Factors in Indian History*, offered a conviction: "there is no doubt that an organized modern state in Tibet will alter the character of the Himalayas." Such organizational work is now under way; and Tibet thus has taken on a political importance it did not possess in the old days of the country's isolation from world affairs.

A General Staff for America in the Sixties

Lieutenant Colonel Anthony L. Wermuth, *Infantry*
Faculty, United States Army War College

THE date was 1925. The audience was the Morrow Board, the President's Aircraft Board, in Washington. Within the broad scope of the inquiry, the immediate subject was whether cooperation is a workable substitute for unified command. The speaker was Commander John Rodgers, United States Navy, who had just finished three years on a Joint Planning Committee in Hawaii:

. . . we did our best to coordinate the Army and Navy air forces, which was our principal job. And we were perfectly honest, and perfectly willing to concede something—that is, a little bit, each of us. And we talked more and accomplished less than anybody I have ever been associated with. . . . I wore out six pairs of pants sitting on that board.

Before the same Morrow Board, an Army witness, Major Horace M. Hickam, evaluated the over-all problem in this way:

. . . nothing short of a department of defense . . . with a new race of commanding officers skilled in the operation of armies, navies, and air forces as our generals now operate infantry, cavalry, and artillery, with the necessary staff—*nothing short of this will meet the situation; and, I am sure we will get it when we are in the middle of a war. . . . I believe we must develop a general staff who are skilled in the handling of armies, navies, and air forces, and who are capable of laying out a campaign, and of using all these forces, either separately or with one another.* (Emphasis added.)

Early Efforts

Back in 1910 the old Joint Board had made the first proposal in United States military doctrine for unified command in joint operations. The proposal was signed by the senior member, Admiral of the Navy George Dewey; and although it was a radical proposal then, it was endorsed by both War and Navy Secretaries and by the President. However, when the Navy reversed its position in 1913, the project died. The problem, however, did not die. By 1922 the first bill to establish a single Department of Defense had been introduced by Representative Walter F. Brown of Ohio. When the 69th Congress convened in 1925, more than 15 bills on this subject were introduced. These were but a few of the many milestones along the trend of the half-century; they marked progress toward the eventual establishment of the Department of Defense in 1947, as the direct and inevitable result of World War II and the subsequent evolution of war in modern times.

Military Staff Lacking

Today, we have a "single" Department of Defense, but it lacks the keystone: a military staff. This is a crucial omission. So long as this "vacuum" exists at the heart of the direction of United States military affairs, we will continue to have vertical budgeting by which each leg of the tripod tries to become bigger at the expense of the other legs, no matter how unbalanced the military tripod becomes as the result. We will continue to have

An Armed Forces General Staff is required composed of military men representing all services with the basic responsibility of ensuring that the US is properly equipped for all types and degrees of warfare

three military departments preparing for what are, to some degree, three different kinds of war. We will continue to have the kind of competition in overlapping weapons systems that, at times, permits enormous expenditures for inferior weapons.

By the same token we will continue to suffer much decision making by civilian staffs on problems that should be solved by military staffs; we will continue to default on military solutions to certain critical issues that have remained unresolved since World War II. We will continue to run the risk of becoming overcommitted to one philosophy or another, as one competitor may be able to marshal great commercial, financial, political, and propaganda support for its own concepts, at the expense of what may be at least equally valid concepts.

No Magic Formula

We apparently still labor under our historical delusion that, if we can only find it, there exists somewhere a magic weapon, or system, or formula, or gimmick that will enable us to defend ourselves cheaply, without major risk or major effort. Part of the popularity of the "massive retaliation" philosophy can be ascribed to its appeal as just such a magic formula, similar to the appeal of others like "cutting the fat" and "a bigger bang for a buck." We also seem to be insufficiently aware of the extent to which time has been compressed. If a next war were to occur, it may become agonizingly clear at the immediate outset that some of the critical military policies in effect at that time are inadequate, and we might wish desperately to change them. But we may not have any time to change them. Realization of this possibility would seem to urge that, although military policies are established in peacetime contexts when many considerations other than military correctness attempt to obtrude themselves, prudence dictates that they be established as though we were already at the height of a war. There is no magic formula or absolute weapon to be found. No philosophy that attempts flatly to predict the nature of future war or to establish insupportable independence of one form of military force from another is useful to us.

Universal agreement appears to have been reached that modern war overlaps media and missions, but we are still trying to come up with unattainable fixed definitions of mutually exclusive roles and missions. What is needed, as has always been needed, is balance among our security arrangements; and the principal national military problem is to keep evolving the proper kind of balance as the world situation and technology evolve. What that balance should be at this time is not proposed here. What is proposed is an agency that will make possible objective solutions of crucial problems, namely, an Armed Forces General Staff, one central arena in which intelligent officers representing all services and varieties of experience can meet and thresh out a solution solely on the merits of the problem. These officers should all be endowed with *responsibility* for solving the *whole* problem,

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Lieutenant Colonel Anthony L. Wermuth was graduated from the United States Military Academy in 1940, and holds a Master of Arts degree from Columbia University. His military service includes duty as battalion commander and G3 of the Southern Landing Force on Kiska Island; instructor and assistant professor of English at West Point; Headquarters, USAREUR, and Headquarters, European Command; Assistant Secretary of the General Staff, Office of the Chief of Staff, Department of the Army; Plans Division, Office of the Assistant Chief of Staff, G3; and command of the 2d Battle Group, 12th Cavalry, in Korea. A frequent contributor to the MILITARY REVIEW, *his most recent articles have been "Can't Live Without Them" (February 1959), and "Crowd Them With Rifles" (July 1959). Following his graduation from the US Army War College in 1959, he was assigned to his present position on the faculty.*

rather than watering down solutions unless certain partial interests are, sometimes disproportionately, advanced. Their staff scope should extend over the entire Military Establishment so that no important element can escape being fully coordinated in the whole joint effort.

Present Flaws

What are the faults of the system we now have? One fault is that no military staff exists with *responsibility* for *over-all* solutions. The Joint Staff has responsibility for over-all *recommendations*, but it has little weight in establishing *solutions* because it operates in an organization with an important flaw: behind it stand the three service staffs. These three are *the* influential military staffs, yet no one service staff bears *responsibility* for the total unified solution or, in fact, for any significant aspects other than those of interest to its own service. The Army staff has no basic responsibility to see that the United States is equipped for air warfare. The Navy staff has no basic responsibility to see that the United States is equipped for sustained land warfare. What is needed is a top staff, all of whose members—whether individually from the Army, Navy, or Air Force—have a basic responsibility to see that the United States is properly equipped for land, sea, and air warfare of all types and degrees in an integrated, balanced solution.

This point should be brought into focus lest the urgent aspect of it be lost. With unlimited resources, even the current organization could develop a balanced establishment. But we do not have unlimited resources, and never will. It is in the allocation of the limited total resources made available that an objective Joint Staff becomes indispensable in order to ensure appropriate parts of the entire establishment in an integrated, balanced fashion.

The other great fault of the current structure is merely another aspect of the same deficiency. The National Security Act specifically forbids the formation of any military staff for the Secretary of Defense, which is something like stipulating that the Postmaster General may not have a staff of professional postal men. To run the Department of Defense, the Secretary *must have a staff*. And, in fact, *he does have one*. Since the law says it cannot be a military staff, the Secretary has been *forced* to establish a civilian staff. This does not refer to the Assistant Secretaries and their principal civilian assistants, but rather to the 1,500 and more civilian incumbents of the staff layers of the Office of the Secretary of Defense. Although they are able and dedicated men, many of them lack military experience and simply do not possess the qualifications of a professional military staff. Yet they have become greatly influential in military decision making, simply due to the fact that they form the staff of the Secretary of Defense.

Military Influence Lacking

Military staff influence is far less than it should be in the Department of Defense, but it should be understood that the issue of civilian control is not involved. Civilians are supreme at the top—the President, the National Security Council, the Operations Coordinating Board, the Secretary of Defense, and his Deputy and Assistant Secretaries, not to mention the Service Secretaries and their Assistants. General Maxwell D. Taylor remarked in 1957 that there were approximately 19 civilian officials, between the Army Chief of Staff and the Commander in Chief, who either command, control, or influence the Chief of Staff's conduct of the business of the Army. Mark Watson has observed that the Navy's Chief of the Bureau of Aeronautics, the officer primarily responsible for the design and procurement of naval aircraft, has 107 seniors who review his planning. This situation might be contrasted with that at the height of World

War II, when, without jeopardizing civilian control in the slightest, the Chiefs of Staff dealt only through their own Service Secretaries directly with the President on critical matters.

Combine Present Staffs

A Joint Staff so organized as to be an Armed Forces General Staff is, therefore, the key element of any proposal to streamline the Department of Defense, to solve so-far-unsolved military problems, and to reach more timely and hoped-for better solutions. Such a staff is proposed here, to be developed simply by combining the major elements of the Army, Navy, Air Force, and present Joint Staffs into an expanded Joint Staff. This staff should be organized just about the way the current Joint Staff is organized (to include a military Comptroller), with equal total representation from all three services, and with equal distribution of key positions among all three services. It should be constituted as *the* staff of the Department of Defense, serving the Secretary, his civilian assistants, and the military chiefs. Civilians in the Office of the Secretary of Defense could well be limited to, say, 100 or 200.

The members of this military staff should be generalists, exercising staff responsibility over the entire Military Establishment in their functional field, for example, a naval officer in J1 must solve personnel problems in such a way as to provide equitably for every member of the Army, Navy, and Air Force. An Air Force officer in the Comptroller Office must act with responsibility for funding all services.

As befits an American solution, permanent assignment would not be permitted. No permanent General Staff Corps would be formed; officers would come to the staff fresh from Army divisions, Navy fleets, and Air Force wings (or comparable assignments), bringing in continually refreshed knowledge and awareness of field problems. After serving their normal tour, they would sever all connections with this staff, and move on to other assignments in which they could be expected —human nature being what it is—to be outraged, at times, by the solutions of the General Staff in the Pentagon.

Reduce Service Staffs

The service staffs would be greatly reduced accordingly, and there is something to be said for moving them out of Washington entirely; for their responsibilities would be limited to such functions as supervising service training, schools, logistic support, base systems, and reserve establishments. All fighting units, and their supporting units, would be assigned to unified commands. Under the Department of Defense directorate and its staff would be placed all the unified commands around the world, as well as the service staffs. Budgets for all forces and activities under this command would be submitted by each unified commander through the Joint General Staff. A corollary aspect, desirable but not considered essential here, would be the transformation of all the war colleges (and possibly the staff colleges) into joint institutions as far as the students, but not necessarily curricula, are concerned.

Two corollary aspects should be covered. No "single service" is proposed, for it does not appear necessary to go to that extreme in order to achieve the end of unified direction. The units that make up the fighting forces should retain their histories, distinguishing marks, and identities as the 7th Army, the Sixth Fleet, and the 12th Air Force, their divisions, ships, and wings. Second, no "single Chief of Staff" is proposed here. Whatever terms of reference are continued or revised for the Joint Chiefs of Staff (JCS), it is proposed that the Joint Chiefs of Staff exercise corporate command of all the Armed Forces precisely as they exercised corporate command in World War II. It

is further proposed that the JCS operate in the chain of command as "the Chief of Staff" for the Secretary of Defense. The staff of which they occupy the position of "chief" is, of course, the General Staff previously discussed. It is believed that, in time, the members of this JCS would continue to exercise corporate command but would be relieved of individual command of their respective services, thus freeing them from *forced* service partisanship while serving as the highest military advisors in the Nation. In any event, it is desired to confine this discussion to the staff, and leave the subject of JCS status for discussion elsewhere.

Misconceptions

Among the historical forces which have been influential in preventing United States adoption of an Armed Forces General Staff up to this time is a widely publicized—and, as will be shown, largely irrelevant—bugaboo called "the Prussian General Staff." It is apparently believed in some quarters, and charged, that the United States Army formed a kind of un-American General Staff in 1903 modeled hook, line, and sinker on the Prussian General Staff; that the Prussian (German) staff was a single-department, all-embracing institution; that the German corps was a sinister body of ambitious, politically interfering, militaristic warmongers; and that Germany lost the two World Wars primarily because she was led to defeat by power-mad actions perpetrated by the German General Staff.

Following are pertinent statements from two witnesses along these lines before the 83d Congress in 1953 House Hearings on Reorganization Plan 6. The first was a businessman, Robert W. Johnson, Chairman of the Board of Johnson and Johnson, and a brigadier general in the Army Reserve:

When I refer to the effort of the military to gain ever-expanding control of nonmilitary functions, it is not to imply criticism of all uniformed military services. I refer specifically to the Army General Staff. Ever since its establishment, the Army General Staff has engaged in an unrelenting struggle for power. Once it had consolidated control over the Army, the Army General Staff launched a drive for greater authority over the other military services, and also over our government and economy. . . .

Our Army General Staff has ample precedent for its effort. That precedent is found in the vicious machinations of the Great German General Staff which, under the driving fanaticism of Ludendorff, achieved economic dictatorship over the German economy. . . .

. . . the General Staff's ascendancy to a position of primacy within the Army . . . was contrary to the original intent of Congress when it created an Army General Staff. . . .

Another witness was the late Major General Merritt A. Edson, United States Marine Corps:

. . . the proposed legislation . . . [is] contrary to the best interests of this Nation, both militarywise and politicwise; it would lay the foundation for the eventual establishment in this country of the Prussian-type, single-department, single military commander and great national general staff military organization espoused by the Germans; and it would foist upon an unsuspecting public a type of military organization which has never yet succeeded in winning a war of world proportions and which has inevitably resulted in the destruction of democratic forms of government wherever it has been adopted. . . .

With due respect to these gentlemen, it is difficult for anyone with reasonably accurate knowledge of history or the Army General Staff to credit their allegations. In refutation of Mr. Johnson's testimony, it *was* the precise intent of Congress, as

will be shown, to put the Army General Staff in a position of primacy in the Army. That was the entire purpose in establishing it. In qualifying what both these gentlemen have said, it may be well to set forth some of the facts of history as to just what the German General Staff was (there are many carefully documented histories available).

German General Staff

First, the German Great General Staff was formed and operated throughout almost all of its history in an autocratic and, at times, militaristic monarchy, and so the question of its effect on democratic institutions is largely irrelevant. Its roots go back to the efforts to bring order out of the chaos that existed at the end of the Thirty Years' War, and back to the militaristic aristocracy of the Junker families of Prussia. The influence of Frederick the Great was not negligible in those early years. However, it is a mistake to overcharacterize the Great General Staff as militaristic, particularly in the century following the Napoleonic era, when the staff rose to eminence. Of the famous names associated with it—Scharnhorst, Gneisenau, Clausewitz, the Von Moltkes, Von Schlieffen, and others—many were men of culture and liberal thought.

Second, the Great General Staff was an army institution. It was never a "single-department, all-service" staff corps, although, in a nation whose king continually wore army uniforms and was surrounded by military trappings, its influence sometimes was felt throughout the German military establishment.

The orientation of its highly selected members was the reverse of political interference. They scrupulously avoided involvement in politics, and one of the surest ways for a member to be disavowed by the Great General Staff was to become a "political general" or otherwise become involved politically. Its field was strictly military policy, and, in fact, there is good reason to judge as politically naive some of the military policies that were advocated from time to time.

The influence of the staff stemmed partially from the influential role that military policy, in general, played in 19th century and pre-World War I German affairs. Nevertheless, the ethos of the Great General Staff was that of service, of dedication to the sovereign and the state, not to self or to group. It habitually contained the most brilliant officers; but it demanded of them, and got, extremely high standards of conduct and performance, and anonymity—not personal glory. Its quality earned the admiration of the German people, and of other peoples as well. In the time of the elder Von Moltke, it was admired universally as a model of military organization and its precepts were studied by the British, French, Russians, Turks, Japanese, and Americans.

German General Staff Feared

In the deepening crisis of World War I, the militaristic Kaiser turned more and more to the Great General Staff. Unfortunately for Germany, the personally ambitious and politically inept Ludendorff achieved far too much influence. At the end of the war the Allied Powers highlighted the Great General Staff as an object of their fear and distrust, and at Versailles the staff was condemned and ordered abolished.

However, in the post-World War I period the older officers sought a revived, secure Germany, and cautiously continued what amounted to a nucleus for a Great General Staff, disguised under the term *Truppenamt*. Hitler may well have been a madman, but he was not a fool; he recognized the Great General Staff as the foe of the kind of Germany he desired to dominate. He ignored what was relatively sensible military advice from the staff, and when he came to power in 1933 he smashed the organization. The result was that, for good or ill, the Great General Staff had

little influence during World War II, and cannot be charged with responsibility for the fate of Germany in that war. To be sure, some vestiges of the staff remained in the persons of individuals trained in the old Great General Staff traditions. One such example was the brilliant Von Stauffenberg who organized (and lost his life in) the 1944 conspiracy to remove Hitler as an enemy of the German people.

The foregoing is an oversimplified résumé, admittedly, but it presents a more accurate picture of the German General Staff than the one widely believed. Among other features of the German system that would be unacceptable to Americans, perhaps the most objectionable feature was the *permanency* of membership in an elite corps, a network of General Staff members distributed throughout the German Army establishment at all levels of rank from captain up. Although staff members filled normal assignments like all other officers, they remained officially in contact with the Great General Staff. This system obviously interfered with the chain of command. However, as for Germany's losing both World Wars, what difference would it have made *what staff system* the Germans had? One might as well argue that they lost the wars because they drank beer, or loved music, or spoke German.

Staff System a Necessity

As military affairs have grown in magnitude and complexity, every modern nation has had to develop a more efficient military staff system, just as staff systems came to be needed in all increasingly complex fields—the judiciary, big business, big labor, university administration, and public administration. Because the Germans achieved an efficient military staff organization first, their solution served as the early model. But if the German Great General Staff had never existed, all modern major states still would have necessarily developed military staff systems generally along lines similar to the ones they have. Why would anyone believe that Americans, whatever models we referred to, would set up a staff system other than American, based on American principles, and designed to fit into the American scheme? The Army's General Staff was never a "copy" of the "Prussian General Staff," nor have responsible American military or civilian leaders proposed that the German version (especially that of a half-century ago) be slavishly imitated.

Before allowing Elihu Root to speak for himself as to the bases he actually used for the type of General Staff adopted by the United States Army, the observation should not be omitted that both the British and French had General Staffs before the United States Army. There is no record, in their nation or ours, or any other, that the adoption of a General Staff "inevitably resulted in the destruction of democratic forms of government."

US General Staff Organized

The General Staff established by the great Secretary of War, Elihu Root, was not by any means a copy of the German staff. After the chaotic performance of the mass of independent bureaus of the War Department in the Spanish-American War, Root sought organizational efficiency and looked into any source that had anything useful to say on the subject. He studied the German, British, and French organizations. He drew heavily on an English work, *The Brain of an Army*, by Spenser Wilkinson, and was led in turn to unearth the works of General Emory Upton who, as Sherman's protege, had studied military organization around the world, but had died in 1881. Root published some of Upton's papers in the classic *The Military Policy of the United States* and was profoundly influenced by Upton's *American* ideas.

It also is a matter of note that the 1903 organization was subsequently, after World War I, further revised to adopt

additional features of the French and British General Staff systems. No better brief explanation of Root's purpose can be offered than his own words, contained in the 1902 Report of the Secretary of War. As one reads them, one cannot help being aware of the parallel that exists with a broader defense context today:

The most important thing to be done now for the Regular Army is the creation of a general staff. . . . Our military system is exceedingly defective at the top. We have a personnel unsurpassed anywhere. . . . We have wealth and a present willingness to expand it reasonably for the procurement of supplies and material of war as plentiful and as good as can be found in any country. We have the different branches of the military service well organized, each within itself, for the performance of its duties. Our administrative staff and supply departments, as a rule, have at their heads good and competent men. . . .

But when it comes to the coordination and direction of all these means and agencies of warfare, so that all parts of the machine shall work together, we are weak. Our system makes no adequate provision for the directing brain which every army must have to work successfully. Common experience has shown that this cannot be furnished by any single man without assistants, and that it requires a body of officers *working together under the direction of a chief and entirely separate from and independent of the administrative staff of an army. . . .*

Neither our political nor our military system makes it suitable that we should have a general staff organized like the German general staff or like the French general staff; but the common experience of mankind is that the things which those general staffs do have to be done in every well managed and well directed army, and they have to be done by a body of men especially assigned to do them. We should have such a body of men selected and organized in our own way and in accordance with our own system *to do those essential things. The most intelligible way to describe such a body of men, however, selected and organized, is by calling it a general staff, because its duties are staff duties and are general in their character. . . .*

It is not an executive body; it is not an administrative body; it acts only through the authority of others. It makes intelligent command possible by procuring and arranging information and working out plans in detail, and it makes intelligent and effective execution of commands possible by keeping all the separate agents advised of the parts they are to play in the general scheme. . . . (Emphasis added.)

Thus at last should be laid the ghost of the "Prussian General Staff." As a matter of fact, not all students of organization over the past 60 years have considered the General Staff idea sinister or inimical to American interests. In his definitive book, *National Security and the General Staff*, Major General Otto Nelson quotes three varied relevant opinions. The first is by the brilliant Lord Haldane, the British Secretary of State for War in 1916:

Really, you know, I do not need to know anything about armies and their organization, for the five reports of Elihu Root, made as Secretary of War in the United States, are the very last word concerning the organization *and place of an Army in a democracy.*

The second opinion is that of a businessman, Mr. James D. Mooney, one-time president of General Motors Export Company:

The modern military application concreted in the term 'general staff' is something to which the student of organization must give his careful attention. . . . There is a vital respect in which military staff organization is in advance of anything yet developed.

The third opinion is that of a scholar, Dr. W. F. Willoughby, recognized authority in public administration:

Much the best example in the national government of the necessity for and the experience with staff agencies is furnished by the War Department.

This is not to disparage any other department's organization.

There is nothing really new about the General Staff principle. George Washington wrote to James McHenry, Secretary of War, on 4 July 1798:

To remark to a military man how important the general staff of an army is to its well-being seems to be unnecessary. . . . The appointment of general officers is important, *but those of the general staff are* all-important.

In reality, whether recognized or not, all large enterprises *have* a General Staff today, a group of generalists who provide, in General Nelson's words, "informative, contemplative, and supervisory services for their chief, the commander."

Pros and Cons

It remains to dispose of a few other varied fears expressed from time to time concerning a General Staff.

Adverse comment.—Controversy is good. Argument is good. A General Staff system would suppress argument.

Reaction.—Whose argument would be suppressed? It cannot be agreed that all controversy is good; a harmful degree of controversy, amounting to wrangling, has existed for years. But healthy argument will continue. A fitting arena is provided here wherein all may argue—paratroopers, submariners, bomber pilots, missile technicians, logisticians, carrier skippers, armor commanders, everybody. The arena is intended to permit military men, after listening to all the arguments, to arrive at *solutions*, based on the merits of the military problems.

Adverse comment.—Certain worthy developments, such as the air-cooled engine, might get suppressed by such a staff.

Reaction.—On the contrary, *worthy* developments will stand a far better chance when judged solely on their merits, rather than, as at present, competing on many other immaterial bases such as commercial interest, newspaper advertising, service bias, or political values. Let us not be unaware that worthy concepts may be suffering in the current context. If such were not the case, we would not, for example, be —in the opinion of many—overcommitted to thermonuclear strategy.

Adverse comment.—No one man is big enough to run the Nation's Armed Forces. A single, all-powerful Chief of Staff would confine military advice to one line of military thinking.

Reaction.—As stated earlier, no single Chief of Staff is proposed here. Even where a "single" Chief of Staff has been proposed, no responsible proponent (for example, Collins Plan, Haislip Board, Simpson Board) has ever proposed an "all-powerful" one. How, under the President, the National Security Council, Operations Coordinating Board, Secretary of Defense, Deputy Secretary of Defense, and Assistant Secretaries of Defense could a Chief of Staff become "all-powerful"? The best precedent is World War II when Admiral King and General Marshall had only their secretaries between them and the President; neither showed any indication of assuming too much power, and no other United States military man has ever evidenced such predilection. As for the Department of Defense being too big for one man, it is obvious that the department is only part of the President's executive domain. If the Department of Defense is too big for one man, then the Presidency, far larger in scope, is too big for one man. Do we seriously propose that multiple persons occupy the Presidency? In any event, *we have had since 1947 one man at the head*

of the Department of Defense—the Secretary of Defense.

Adverse comment.—People in a General Staff will be running things which they have not personally experienced. "Where are you going to find that superman?" once asked Secretary of the Navy John L. Sullivan. "I'd hate to see a bunch of artillerymen try to run a destroyer."

Reaction.—So would anyone. Since the Navy so far has been able to keep destroyer command out of the hands of the lawyers and researchers, and since the Army has been able to see that artillerymen are not assigned to command hospitals or signal depots, it is expected that the Military Establishment—even under a Joint General Staff—would be able to cope with its assignment problems. In any event, there would be plenty of people around in any "shop" on a General Staff, whose composite experience will include everything of importance done in the Armed Forces. To be sure, as one mounts higher in any large organization, obviously officials are needed who have not participated personally in every activity performed by their organization. An Army division commander runs an outfit composed of units of infantry, artillery, armor, signal, engineer, medical, quartermaster, military police, and other units. Obviously, he cannot have served in them all and still be "young" enough to command a division.

Adverse comment.—Why can't we just continue our current system and improve it? If a war occurs, there won't be any delay in getting swift agreement on actions to be taken.

Reaction.—The current system has not resolved certain critical issues, despite 12 years of opportunity. Of course, agreement will be reached quickly in time of war, since it will have to be reached. But what will be possible to do will be limited to the types and numbers of forces available. Well and good. But the *decisions that limited us* to those types and numbers will have been taken years before, under a system which has all the defects pinpointed in earlier sections of this article.

Conclusion

The officers of all the United States Armed Forces have had considerable experience with General Staffs in the past 17 years—in the wartime staffs as well as in the postwar international staffs of the Supreme Allied Commanders (SACEUR, SACLANT), the Joint Staff of the JCS, and the staffs of the unified United States commands currently operating with increasing success in all major theaters around the world. The term "General Staff" (or a better term, if one can be devised) should no longer be a bugaboo to military men in any United States uniform. As anyone who has served on such staffs can testify, all services can have full confidence in the staff competence, articulateness, and dedication of their officers. If there is anything worth saying on any subject under discussion by such a staff, it will all be said.

In the spring of 1959 the House of Representatives Committee on Appropriations approved the annual defense appropriations bill but added this comment:

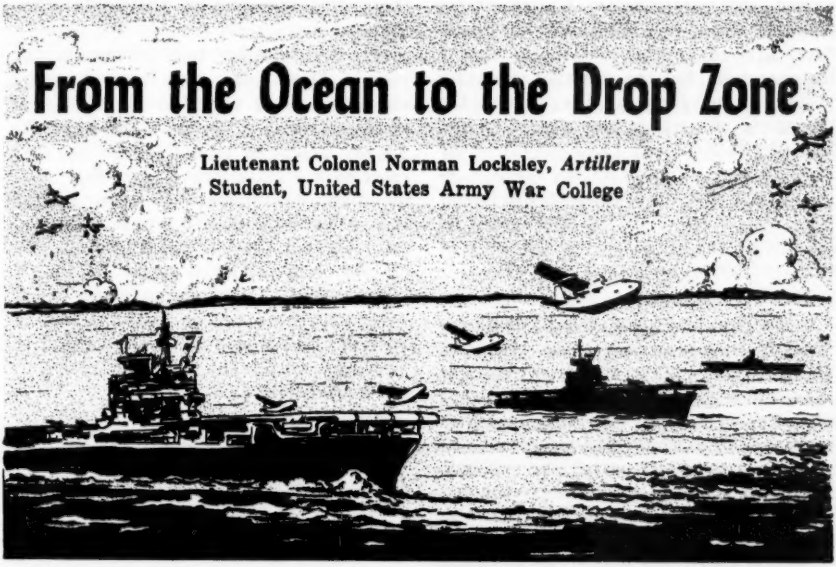
. . . Differences of opinion are natural and understandable, but the testimony clearly indicates that there is something wrong in our present military planning. It seems quite apparent that, in this regard, the Joint Chiefs of Staff, as a corporate body, is not providing the kind of advice and leadership which this country requires.

It is not with these individuals but rather with the organization and system of operations that the Committee is concerned.

This article is another expression of the same concern, so that staff officers like Commander Rodgers can accomplish more in three years of joint council than wearing out six pairs of pants.

From the Ocean to the Drop Zone

Lieutenant Colonel Norman Locksley, *Artillery*
Student, United States Army War College



WHEN the word was passed on board the carriers, all hands listened intently. "Now hear this: Pilots, troop commanders, and jumpmasters report to Ready Room 1."

What would it be? Training exercise, results of the last inspection, or operation briefing? As the group assembled, the executive officer walked in, radio message form in hand.

Gentlemen, Joint Task Force 96 will put on a demonstration next week for the Conference of Asian Republics. As you may know, delegates are meeting at Pam-nam, capital of Maldavia. The Premier of Maldavia invited the United States to drop a paratrooper force on the local Fair Grounds during the conference as an illustration of US friendship and readiness to help resist aggression. Details as arranged between COMNINTHFLEET and COMJUSMAAG-Maldavia. . . .

On board the four carriers, core of the task force, crews swung into stepped-up activity. Sandtables appeared in the training areas as noncommissioned officers explained to their troops: "Maldavia, one of the newer free republics of Asia, is surrounded by Communist-dominated neighbors. Without a seacoast, it has had continual trouble keeping in contact with the Free World. Note how it is ringed by Outer Baldonia and Inner Baldonia. We will drop just south of Pam-nam, here, and. . . ."

Mechanics, airmen, troopers, riggers, communicators, seamen, pilots—ships

Innovation is required in fields other than weapons to keep advantage in the world balance of power. A Joint Airborne Carrier Task Force would provide land, sea, and air elements adding to the Free World strength

XUM

buzzed with preparation. United States Advisory Group and Maldavian liaison officers arrived to work out the details of the operation. But the standing operating procedures told the most. They covered the thousands of preparations needed to get the 102d Battle Group (Reinforced) of the 21st Airborne Division off the carriers, in the air, and over the drop zones. The troops were aboard three of the four carriers; the fourth was the attack carrier with its usual complement of attack aircraft.

D-Day

A few days later, everything was set for "D-day"—Demonstration Day, that is. Weather turned out just about right, light wind and a calm sea. While the carriers headed slowly into the wind, troopers boarded their aircraft. Red-capped riggers made final checks of parachutes and harness. Catapult officers eyed their watches and everybody felt that just-before-launching tension.

Fighter escort was first in the air; from the fourth carrier. Planes orbited overhead protecting the launching from "bandits." Sonar gear on the DDR's (radar picket destroyers) listened for underwater snooping, too. Cruisers and destroyers were deployed in launching formation, and over the horizon the rest of the Ninth Fleet stood by.

The first aircraft took to the air. As soon as flight decks were clear of the 12 aircraft carried topsides, the deck-edge elevators brought the other 12 from the hangar deck. The launching of these aircraft took a little longer since they used the flight deck instead of catapults for takeoff. In 50 minutes the parachuting element of Joint Task Force 96 was in the air—72 troop carrier aircraft, about 2,000 jumpers, and 18 tons of equipment.

Soon the hills and valleys of Maldavia were in view—about 240 nautical miles to Pam-nam, within the radius of action of the troop carriers.

"Get ready . . . stand up . . . hook up . . ."—jumpmasters sounded the familiar commands. Red lights on at the jump doors, navigators getting their last fixes until. . . . On went the green lights and out went the troops.

Troopers Land

In less than 30 seconds the 12 aircraft of the first serial were empty. Upturned faces broke into smiles and cheers as parachutes blossomed and the troopers landed. Quickly, the men doffed 'chutes, raced to prearranged assembly areas, and cleared the drop zone for the next group.

As announcers explained what was going on to the crowd, troopers fired blanks and went through their attack plans. Loudspeakers told how:

In response to calls for assistance, the Americans came from ships 250 miles away and are demonstrating how they would seize an airfield by dropping from the sky. Soon more airplanes will come and drop men and equipment. Then others will be able to land here.

The next serial was already in sight. More troops jumped, plus bundles of ammunition and other equipment. The heavy drop came over five minutes later. Rocket launchers and trucks this time; rockets

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Lieutenant Colonel Norman Locksley entered the service in 1940. He served with the 176th Field Artillery Battalion, 3d Army, during World War II, and subsequently was with the 9th and 1st Division Artillery. He received his Master of Arts degree from the University of Minnesota in 1949 followed by duty on the staff and faculty of the Army General School. Other assignments include duty as commanding officer of the 48th Field Artillery Battalion, 7th Infantry Division, during 1953-54 in Korea; commanding officer, 457th Parachute Field Artillery Battalion, 11th Airborne Division, 1955; and Office of the Deputy Chief of Staff for Personnel, Department of the Army. A graduate of the US Army Artillery School; the Airborne Course of the US Army Infantry School; and the U. S. Army Command and General Staff College (1946), he now is assigned to the US Army War College as a student.

and a bulldozer. The crowd voiced amazement as the heavy loads floated to earth.

Now the field was prepared for landings; the next serial made an assault landing with air-landed troops and equipment. They reinforced the airhead, took care of simulated casualties, and set up supply points. Signalmen handled normal message traffic to aircraft and fleet.

In a few more minutes the peaceful demonstration ended. The crowd cheered, diplomats applauded, and the troops set up their camp. Nobody missed the point that men and weapons could have answered the invitation in earnest even faster—and with more telling effect.

The next day the operation unwound in reverse. Troopers boarded their aircraft, took off from the improvised assault landing field, and headed for the carrier base. Air officers and their assistants busied themselves now getting the force back on the carriers. Arresting gear twanged and stretched—but held—and all arrived safely back aboard.

Once again the Joint Task Force resumed its course.

Fantastic? Carrier base completely impractical to mount an airdrop? Strictly Buck Rogerish? Not at all.

Within Capabilities

A carrier-based airborne task force is well within the capabilities of men and equipment now on hand. Only *one* vital ingredient is missing—a modified aircraft. *And that one could be furnished in short order.*

The concept can be covered briefly. Carriers, say of the *Essex* class and larger, have potential use other than toting attack aircraft. By adding troop carrier aircraft, paratroopers, and their equipment, carriers can become the nucleus of a most useful task force. Flexible, fast, and effective, this force can use the sea as a highway and bring the "airbase" close to the scene of action, or where a scene of action might be. Thus paratroops can be carried over barriers of sea and land and drop where Army power is needed.

The need for this type of force is summed up in the national strategy of deterrence, not only deterrence against mutual intercontinental ballistic missile (ICBM) attack, but a "force in being" also strong enough to discourage smaller-scale attacks. The other kind of war, the "limited" kind, seems to be much more likely as long as nuclear weapons are available to both sides. Both types of war —the all-out and the "limited"—present a real danger.

To keep little aggressions from growing into big wars is a reasonable goal of deterrent power. While "massive retaliation" is held for the "all-out" requirement for its use, power is applied all around the world in ways that call for other responses. The graduated application of force to fit the need demands a flexible approach.

The number one reason for having a carrier-based airborne task force is flexibility. The seas become highways to bring bases where they are wanted. Then, when the force gets there—at the rapid speed of the modern carrier—landpower, airpower, seapower, and, most important, "psychological power," are available immediately. The second requirement is the factor of the maximum use of what we have.

Historically, the major factor in successful war has been innovation, not in weapons, because two industrial nations cannot long keep secrets of hardware from each other, or maintain but a temporary advantage. Instead, the balance of world power most often has been changed by *non*weapon innovation.

Recall how the sheer weight and organization of our productive base—both in turning out fighting divisions and in aircraft and ships during World War II—contributed to the victory over an equally advanced foe, in terms of science and industrial ability. But our innovation was

the combination of industrial power, organizing ability, and leadership into the armed might that won the war.

Similarly, now, the combination of aircraft carriers, airborne troops, and troop carrier aircraft can be welded into a breakthrough of effective use. The whole can be *greater* than the sum of its parts.

We now possess the ability to make good use of seapower. Leading from strength would involve full use of mobile sea-based power. Task forces roaming the seas with missiles and men ready to go would achieve the maximum deterrent effect.

Another angle of flexibility is found in the fact that floating task forces require, in general, no more oversea bases than we have. As centers of mobile power, always under US control, they can be responsive to national interests immediately. Time saved might be decisive in a flash crisis, and might even prevent it from happening in the first place.

Employment

A floating task force of paratroopers meets the following requirements for a sliding scale of response to aggressive measures:

1. *In time.*—The answer to an aggressive move can be given quickly. From a permanently deployed force, in less than 24 hours.

2. *In force.*—From a reinforced company with conventional weapons to several battle groups with nuclear fire support.

3. *In space.*—Parts of the world within 400 miles of the sea could be reached with men on the ground who could extend that radius of action even farther.

This Joint Task Force could be used in two ways:

1. Permanently deployed.—As part of the Sixth and Seventh Fleets, for example, a Joint Task Force could remain at sea.

2. Special mission.—This force could be formed as needed; or, better from the standpoint of time, be prepackaged and allotted to specific tasks on a stand-by arrangement.

Combinations of the two principal methods are feasible. Thus a permanently deployed force might be reinforced for a specific mission by adding submarines with missiles, missile ships, landing craft, more carriers, troop ships, or any other combination. Maximum flexibility would result from combination use. A permanently deployed force could be "beefed up" for an amphibious operation by adding a Marine helicopter landing team or two, supply ships, transports, and a couple of attack carriers. The basic organization of the force at sea could be reinforced as required to fit the specific task.

Proposed Organization

Joint Task Force 96, a permanently deployed force, might be organized, in general, along this pattern:

Ships: 4 aircraft carriers, *Essex* class to *Forrestal* in size
6-12 destroyers
1-3 cruisers, perhaps a guided missile cruiser

Land striking force:
1 reinforced battle group, _____ Airborne Division
1 helicopter landing team, _____ Marine Division

Aircraft:
6 squadrons—72 troop carrier aircraft
4 squadrons, standard attack carrier complement
About 70-80 aircraft

The land striking force would be divided among three carriers. The fourth carrier is the attack carrier; its mission is to provide airpower for the task force. The troops, weapons, and their aircraft are preset in ready-to-go attack formations. The troops also will rehearse various combinations of formations and supporting weapons for the assault. Through this constant practice, this task force would be-

come a closely knit, tough, "lean and mean" group of professionals.

The reinforced battle group from the airborne division makes a flexible and hard-hitting basic element of our carrier-based airborne task force. As the landpower fist of a permanently deployed force, it can operate independently or join up with a larger force. The next waves, in turn, can either be air landed or dropped.

Basic Problems

Having worked out, in a general way, the requirement for a carrier-based airborne task force and a method of employment, the next step is a hard look at some of the basic problems involved in making this force a reality. These problems can be put into focus by starting with a list of the advantages and obstacles of a carrier-based airborne task force.

Advantages:

1. Flexible use of our own sea, land, and airpower. In a combination of striking power, the whole is *greater* than the sum of the parts. The combination of force increases at an exponential rather than an arithmetic rate.

2. Maximizes use of our equipment on hand. The United States has more aircraft carriers than any other nation. This force maximizes fast and economical sea transport over long water distances, and provides air transportation for shorter hauls.

3. The force would be a real professional group in the sense of being highly trained and ready to go when the whistle blows.

4. Always under US control. Not directly dependent upon oversea bases, the force would not lead to all the delicate considerations involved when large numbers of US troops are on a foreign soil.

5. The psychological advantages of a weapon that cannot be duplicated, at least not for some time. This force would add a "subtler military capability" to the arsenal.

Obstacles:

1. Innovation is always difficult. Putting over any new approach is difficult, but this is a good test of whether an idea is just a brainstorm or has some practical value.

2. Command lines are a problem. This is a tangible difficulty. Department of Defense reorganization matters have been omitted from this discussion to keep the concept on a technical level. A Joint Task Force with airborne troops would be a complex organization. Although it would include Army, Navy, Air Force, and Marine Corps, it would be no more complex than World War II amphibious invasion forces. Can a similar force be trained without the stimulus of war?

3. Cost. Development and production of the modified troop carrier aircraft would cost a relatively small amount in view of the return. Studies have been made of the engineering problems; they appear to be fairly easy to overcome.

As a matter of interest, a considerable amount of work has already been done in connection with two of these factors. First, using combat carrier aircraft for cargo has been tried before, and is now being done. When the *USS Leyte* was off Korea in 1950, her fighter aircraft needed some felt gas strainers in a hurry. A few TBM's (torpedo bombers) were quickly modified, and a supply service was set up from the base back in Japan. This arrangement proved to be so fast and practical that "Carrier On-Board Delivery" was nicknamed "Codfish Airline."

Modification of existing troop carrier aircraft for carrier takeoffs and landings is the *only* material problem. All other elements—ships, guns, signal equipment, trained paratroopers, and airborne techniques—are in being.

The modifications involve, principally, folding wings and tail, and stressing the

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craft for carrier takeoffs and landings. These can be accomplished.

Conclusion

A carrier-based airborne task force would increase the potential of the United States to wage a "limited war." It would, in fact, raise the deterrent value of the present force in keeping a "limited war" from breaking out. Or, if it did, it would allow fast action in the early stages that might snuff out the fire before the blaze spread. All this could be accomplished without a requirement for any additional foreign bases.

This type Joint Task Force is *not* a "limited war" striking force, per se. Nor is it a "general war," "cold war," or any other kind of special purpose organization. One-shot weapons are too vulnerable to being checkmated, as well as requiring a high investment-to-return ratio. Rather, the command can be used to meet a flexible range of situations—from the demonstration described earlier to the land action after a nuclear exchange. With a few *Polaris* submarines and intermediate range ballistic missile (IRBM) ships added, it becomes a megaton-packed seagoing prowler.

Mobility makes it difficult to locate, carrying capacity gives it a complete assortment of reactions, and soldiers give it finesse. This variety of possible response —where, when, and how much?—makes it an uncertainty factor in the Soviet balance-of-power calculation.

Innovation is needed in fields other than weapons to keep an advantage in the world balance of power. This type of innovation leads to optimum use of the weapons and men we already have. It provides a combination of land, sea, and air elements that the Soviet Colonial Empire cannot presently match. As such, the Joint Airborne Task Force would be a welcome addition to Free World strength.

All that is needed is a small pilot program on an experimental basis. We stand to gain a great deal from a successful test —so let us try it.

Speed is of essence in strategic mobility. Speed to get the striking forces where they are needed and speed to move vast tonnages of equipment and supplies to support combat operations. This is the Army's Achilles' heel—and the Nation's.

* * * * * * *

What the Army requires for strategic mobility is to have the first troops appear in an objective area within a matter of hours. Shuttle aircraft should have the first division on site in the shortest possible time, using everything that airbases can support.

Then comes the logistical support. It too must be rapidly airlifted until such time as surface lines of communication can be established.

In short, our strategic airlift capability must be tailored for both limited and general warfare. It must get initial combat troops into a trouble spot in a matter of days—or hours. It must be capable of transporting a strong Army combat force which may have to be as large as two divisions. It must also support such a force until sealift can take over that task.

General Bruce C. Clarke

THE ROMAN ARMY

Dr. Cornelius C. Smith, Jr.
Historian, 15th Air Force, Strategic Air Command

THE development and extension of the Roman Empire is easily one of the most remarkable events in recorded history. A number of factors made possible the Empire's phenomenal growth, and Rome's contributions in the fields of law, government, and the arts have played an important part in the development of Western culture. Basically, the introduction and perpetuity of these factors came about as the result of superior military prowess and the indomitable will to dictate policy by force of arms. Freeman, in his introduction to Theodor Mommsen's monumental *History of Rome*, states that:

It is in Rome that all ancient history loses itself; it is out of Rome that all modern history takes its source. . . . the history of Rome is in truth synonymous with the history of the world.

An inspection of the machinery calling forth this statement is in order.

Through organization, initiative, and determination the Roman military arm was able to expand from its base on the Italian Peninsula to all of the lands bordering on the Middle Sea. Considered in the light of logistical supply alone, the accomplishment was heroic. Spirited resistance from adversaries abroad make the feat even more remarkable. The army was one of the best fighting machines the world has ever seen. Strong, disciplined, alert, spirited, it preserved for almost a thousand years the security of Rome—first for the Republic, later for the Empire. In many ways the world has not seen another army quite like it. Viewed in the light of accomplishments in its own time, it remains without parallel. It is an institution unique in the development of military history, worthy of analysis for those interested in the story of mankind. An inspection of some of the component parts of the army, and a brief review of these forces in action will serve to bring the picture into proper focus.

The Foot Soldier

The *Impeditus* (foot soldier) carried most of his equipment with him, generally done up in a bundle and slung over a pole. In this gear might be found entrenching tools and items of utility for use in camp. He wore a knee-length tunic and a thick cloak used as a blanket at night, a woolen neckpiece (*focale*), and hob-nailed sandals. His arms consisted of a sword, spear, and dagger (*pugio*), and he was turned out generally in a cuirass of scales or chain mail. In addition to the spear he carried two javelins (*pilum*) designed to penetrate and stick into whatever target was offered. Those who sought to defend against it were often badly hurt due to the weight and forward motion of the weapon.

In the early period, foot soldiers carried rectangular shields, sometimes flat, sometimes convex. As time passed, a new oblong shield evolved, convex partially to

Courageous, aggressive, adaptable to change, and inventive, the Roman Army was one of the most outstanding military machines of all time and brought both organization and discipline into the military science

circle or enclose the body. It was about four feet high and was used not only for individual protection but as a unit of a solid wall repelling enemy charges, or sometimes as a roof against a hail of missiles. The convex form was adopted because sword blows glanced off the rounded shield more easily.

The centurion was a type of "junior officer," the lowest ranking of the officer class within the army. Generally chosen on his personal merits, the centurion was the mainstay of the organization, providing the bridge of contact between commander and troops, maintaining discipline, and offering examples of moral or physical courage to suit the occasion. As a rule he was passed by promotion from cohort to cohort. His armor was silvered to distinguish him from his charges, and in addition to bearing personal arms, he carried a *vitis* or vine-staff, a symbolical badge of authority sometimes used to flog recalcitrant soldiers.

The Legion

The legion was the army's principal unit varying in strength from 3,000 foot soldiers and 300 cavalry troops in early times to as many as 5,000 to 6,000 foot soldiers under the Empire. Until the time of Marius, the normal size of the legion was 300 nobles (mounted troops) and 4,200 foot soldiers. Of the latter, 3,000 were fully armed and 1,200 lightly armed. The heavily armed soldiers were divided into three classes according to seniority and familiarity with warfare. Under the manipular concept these classes formed three separate divisions: *hastati*, *principes*, and *triarii*. The cohort was a body of men one-tenth the size of the legion, each cohort having three maniples of the three classes of soldiers. A maniple was one-tenth of a division; thus in a *hastati* division of 1,200 men, there were 10 maniples of 120 men each.

In tactical formation the legion usually offered three lines to the enemy. The first line (*hastati*) was ordinarily six ranks deep, and the soldiers were armed with sword and two or more javelins to hurl at the foe. The second line (*principes*) was six to 10 ranks deep, also armed with throwing javelins. The third line (*triarii*) was three ranks deep, but had only the broadsword and the thrusting spear (*hasta*).

Tactics

These lines employed a defense in depth tactic which gave the entire unit mobility and security at the same time. Stated simply, the formation was nothing more than a checkerboard arrangement wherein the frontline spread out in maniple-width intervals, and the succeeding ranks covered the blank spaces with maniples similarly deployed. In this way every unit was afforded cover, and there was room to maneuver. Whenever necessary, the forward echelons might retire and permit the *triarii* to advance with spears at the level. Thus the enemy, already worn down with javelin volleys and harassed by sword-wielding *hastati*, was suddenly confronted with solid rows of gleaming spears. The maneuver was elastic. It could be used profitably against troops like the Gauls who habitually charged and could be absorbed in the intervals. It also could be used against troops employing a static de-

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fense which once broken lost its effectiveness.

The Roman attack began with a short charge by the *hastati*, after one or two volleys of the *pilum*. In some cases lightly armed auxiliary troops (*velites*) began the skirmish, retiring quickly to allow the shock troops opportunity for battle. After the initial thrust the main body joined the fray, permitting the first lines to retreat in an orderly fashion and tend the wounded. Whenever superior numbers opposed them, the Romans retired slowly, wearing down the vigor of hostile attack with a continual shifting of troops as previously described. All of this was accompanied by the blowing of horns and trumpets to spur on Roman valor and to impress the enemy with Roman coolness and discipline. The formation put upon the individual soldier the qualities of steadiness, self-reliance, and strict obedience to command.

Frequently, the Romans could retire to a fortified camp in the course of an exhaustive battle. This was so because their colonies, being garrisons, required numerous prepared positions. Even when making camp for a single day, Roman commanders generally prepared it against surprise attack. Other armies of the time did not follow this practice. The drawback to this was that the work frequently took all afternoon. After a long morning's march the men were too exhausted to do a first-class job of digging in. More often than not no attack came, and the work seemed in vain. While the Romans would not defy the terrain by making camp in places difficult to defend, they generally camped wherever the waning hours of light found them. These camps were always orderly and militarily secure after the Roman fashion.

Physical comfort, desirable enough in any society, was always subordinated to security. Wherever possible, the Romans tried to combine the advantages of billet and bivouac, thus assuring moderate comfort in an atmosphere of readiness. The concepts of individual unit responsibility for security, and liaison with the main body always were factors of the utmost importance to Roman commanders.

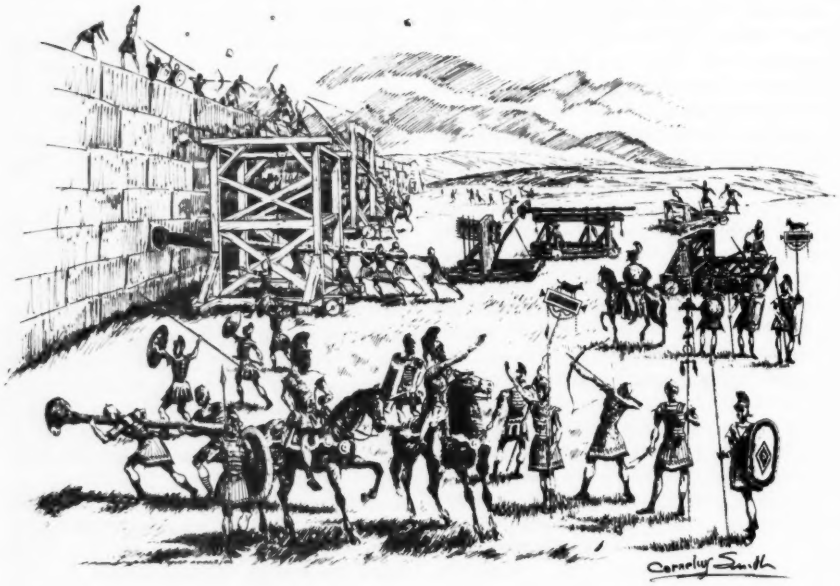
Aggressiveness was supremely important to them. They detested defeat and did not take it lightly. Even severe maulings were considered as temporary setbacks, the really decisive character of which lay ultimately in their hands.

Roman commanders were loath to mix unseasoned troops with veterans, feeling that the inexperience and lack of discipline of the former might reduce the entire unit to ineffectiveness in battle. Therefore, they maintained experienced personnel intact, placing them in special units apart from the others.

The Romans regarded the infantry as the queen of battle. They had cavalry, of course, and used it with telling effect. They had artillery of sorts, and they had support echelons to back up the combat elements of the army. Nonetheless, the temper of the army was pedestrian in a very literal sense. The cavalry was employed more in delivering missile attacks than for shock tactics, and the horsemen and archers for these purposes generally were borrowed from countries specializing in mounted warfare. In every way, the foot soldiers of the legions were the staple commodity of the Roman Army. With Rome the leading military power and the infantry the predominant arm, the decision of war rested with that body. Had Rome depended more on the other arms, it is probable that the provinces supplying them would have counted for more in the Roman order.

The character and effectiveness of the Roman soldier were changed by the introduction of new techniques. One of these was the emergence of the cohort as a tactical unit. Among other factors, the employment of the cohort had the general effect of increasing the individual soldier's

self-reliance, and giving him identity with a unit he could understand and in which he could take pride. Along with the cohort came increased adaptability to tasks of all kinds including engineering and logistical supply. Thus there gradually came a change which made the Roman soldier more professional, and more closely attached to his unit and to his commander. This professional character produced in the elite corps a feeling of superiority over the mercenaries and auxiliaries who served beside them on occasion.



Siege Machinery Developed

As time passed the army became increasingly more technical, and the construction of siege machinery came to be studied as an art. By 133 the armies before Numantia were building fieldworks equal in size and technical complexity to much of the work done by professional siege-craft artisans in later times. Important buildings such as granaries and barracks already had arrived at something like a standard pattern.

One of the more dramatic devices of Roman warfare was the battering ram. The long wooden beam was capped at one end with a heavy mass of bronze or iron shaped like a ram's head. In its simplest form it was swung to and fro by hand, in cadence against a barricade or wall. Later on it was suspended from an upright frame and made to swing by means of attached ropes. The entire assembly moved on wheels or rollers. A wooden roof was built to protect the operators from enemy missiles. The ram varied in its length from a few feet to a prodigious tree trunk of 100 feet or more, the head in this case weighing over a ton. The number of men who might be used to swing such a giant was 100. When the blows continued long

enough, scarcely any wall could stand up under the pounding.

Another device of some interest was the besieging tower. Most of them were fitted with large battering rams which the manipulators could operate securely under stout covers to ward off arrows, stones, and other flying objects. Some were fitted with movable drawbridges to serve as catwalks in scaling high walls. Most of them were mobile, outfitted with heavy crude wheels, and pulled by many horses, or men, or both. Often these towers were mammoth, and there are records relating that a few reached a dizzy height of 20 stories, with ports of egress at each level. The Romans used scaling ladders, but generally in surprise attacks since the ladders offered no defense to the user.

Perhaps the most dramatic of the Roman weapons were the catapults and ballistae. The catapult was a machine designed to throw stones, burning pitch, darts, javelins, and other missiles over protecting walls onto the enemy. There were numerous variations of this weapon. The smaller ones were nothing more than mechanized bows; the larger ones employed twisted skeins of catgut attached to horizontal arms which pivoted violently on release. The catapult was less powerful than the ballista, but more uniform in its range; over-all it was a more dependable weapon.

The ballista was in essence a large catapult capable of hurling heavy missiles considerable distances. There were two distinct types of propelling force used in Roman ballistic weapons: the first, a smooth toss occasioned by the reaction of tightly twisted strings suddenly released from tension; the second, an explosive release caused by the violent movement of levers. There were three ingredients favored by ballista makers for use as cordage in these machines—women's hair, the tendons of deer, and the sinews of a bull's neck.

The Roman siege weapons gave rise to comparable engines used with varying degrees of success in later centuries; the trebuchet, petrary, robinet, mate-griffon, mate-funda, and the tricolle. These were followed by the espringal, ribaudequin, warwolf, and the arbalest. The Romans even named their weapons as we do now. There were no *Honest Johns*, *Wac Corporals*, or *Long Toms*, but one little stone thrower was dubbed onager (wild ass) because of its terrific recoil.

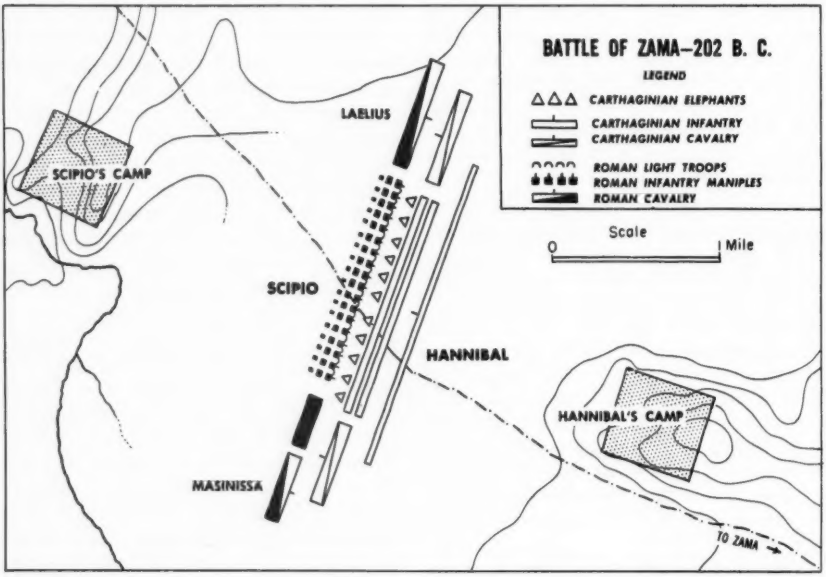
Subsequently, the terror of the ballistic weapon was sometimes aggravated by its employment in fiendish ways. At the siege of Antioch in A. D. 1097, the Turks hurled the severed heads of slain foes into the midst of the enemy. There is no record of the Romans using ballistae in this manner. Most of the technical refinements in ballistic weapons came during the Middle Ages, but the Roman Army did use them with some degree of success in battle.

Battle of Zama

For a look at the army's prowess in battle, its conduct at Zama is a case in point. One of the most decisive military encounters in world history, Zama proved to be Hannibal's only real defeat, and thereafter the Carthaginian threat to Rome was negligible. In retrospect, it might be said that the Roman Army under Scipio was fortunate in gaining this victory. Hannibal had been the thorn in the Roman side for 16 years. He had crossed the Ebro in Spain, marched through Gaul, over the Alps, and down into the Italian hills to administer a series of defeats culminating in the Roman debacle at Cannae. The latter was the most devastating of any of the setbacks suffered by the Republic, and placed Carthage in a position of terrible menace to Rome. The armies of Amelius Paulus and Terentius Varro were annihilated. In a sense it is remarkable that Cannae did not end the war. The

Roman resources, reduced drastically in terms of men and money, were not exhausted, however, and the struggle continued.

Thereafter, the long drawn out war assumed a new character of waiting and siege. As Hannibal gained the seaports, Rome quelled uprisings by dissident factions within its own structure, finally turning to lay siege to the Carthaginian forces at Capua and Tarentum. Later, at



Metaurus in 207 B. C., the consul Nero came to the timely rescue of the Roman forces under Livius Salinator and Porcius Licinus and drove off Hasdrubal's army with great losses. This defeat ended Hannibal's hope of success in Italy, yet he stayed on seeking the opportunity for a new and decisive strike at Rome.

Thus it is that we find Scipio, in defiance of the Roman Senate, turning from Hannibal in southern Italy and crossing into Africa to harass Carthage. Once ashore he quickly reduced the Carthaginian defenses in a series of lightning strokes, forcing his stunned adversaries to sue for peace. Before peace could be established, Hannibal hurried home, landing at Leptis Minor with about 20,000 men, and moved on to Susa to recruit more troops (mainly cavalry) for the forthcoming showdown. Greatly encouraged by this show of force, the Carthaginian patriots promptly forgot all about the peace talks and seized the Roman envoys. Thus warned of Hannibal's motives, Scipio struck his camp at Tunis and moved up the Bagradas Valley, burning and pillaging as he went. In so doing, he drew Hannibal away from the Carthaginian supply depots and the prepared defenses around Carthage. In short, he chose his own battleground. Moreover, the move brought him closer to his Numidian ally Masinissa. The two armies came together at Zama.

Scipio and Hannibal met in parley before the armies drawn up, but neither would recant and it was decided to settle

the issue by battle. Of this momentous decision Livy was to say:

Before tomorrow night they would know whether Rome or Carthage should give laws to the world, and that neither Africa or Italy but the whole world should be the prize of victory.

In quality and training, Hannibal's army probably was superior to Scipio's, and the arrangement of his forces indicates a greater tactical sense. His infantry was comprised of three separate groups: Mago's troops, some Carthaginian and African levies, and his own elite corps. The Ligurian and Gallic auxiliaries were placed in the frontlines in open ranks formation so as to provide room for the Balearic slingers and Moorish light infantry. Considering the levies unreliable, Hannibal sandwiched them in between Mago's troops and his own, making defection improbable. Approximately 200 yards to the rear of these he placed his own corps of veterans. On the wings were his cavalry, about 2,000 strong, Carthaginians on the right, Numidians on the left. Ranging across the entire front of his infantry were 80 elephants with their drivers. In earlier battles he had used these lumbering creatures with telling effect, watching them trot angrily forward trumpeting and squealing, and mashing men like eggshells.

Scipio put his infantry in the center of his line to take the brunt of Hannibal's attack. He put all of his Numidian troops, foot and horse, on his right flank, and the Italian cavalry under Laelius on the left. The center was drawn up in normal fashion: *hastati*, *principes*, and *triarii*, but in this case the Roman general used a stratagem which was to alter the entire course of events. Instead of putting his troops in the staggered checkerboard pattern, he placed them in a series of columns with wide avenues running through the army from front to rear.

As the battle opened, Hannibal sent his elephants careening into the Roman center, hoping to scatter the *hastati* like quail. Taking the line of least resistance, the huge beasts chose to follow the cleared lanes rather than seek out men to trample. Scipio ordered his musicians to sound long trumpet blasts. The result was chaotic. Frightened and confused, the elephants broke and ran, some turning upon the Carthaginian infantry in their wake. In the melee, the Carthaginian left wavered and broke, and Masinissa drove in to capitalize on the astonishing turn of events. Soon Hannibal's left wing was completely exposed.

For some reason the elephants which had passed harmlessly through Scipio's army now wheeled and made straight for the Carthaginian right wing, scattering the cavalry mounts over the field. Like Masinissa before him, Laelius now saw his chance and moved in on the heels of the raging pachyderms. Soon Hannibal's right flank was in full flight with Laelius close at heel.

The main bodies closed. Hannibal's troops fought vigorously, but the compact weight of the Roman lines, now regrouped, proved impregnable. Spurred on by the success up front, the *triarii* shouted encouragement from the rear. As Mago's troops fell, Hannibal threw his African troops and mercenaries into the breach, yet withheld his veterans for a fresh assault when the propitious moment might arrive. Angered at carrying the full load, the Gauls broke and retreated into Hannibal's line, but were repulsed and sent reeling back into the fray.

Roman Victory

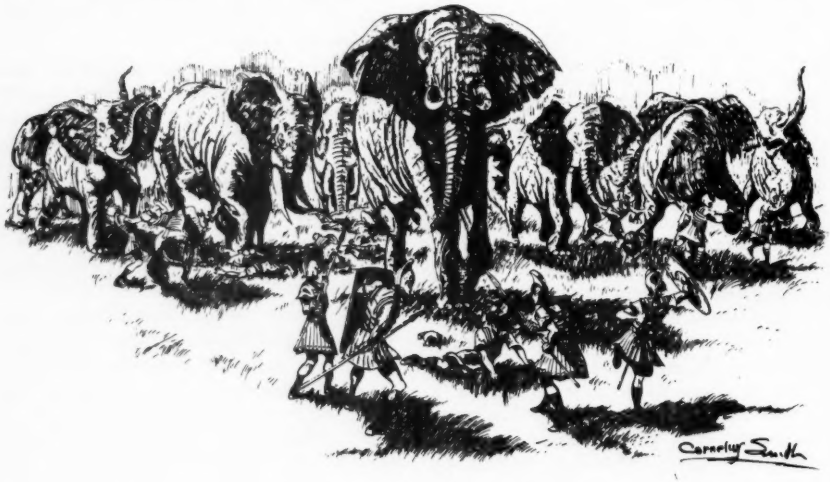
Back and forth the battle raged, thousands falling under the impact of sword and spear, club and dagger. At last, Scipio must come to grips with the fresh units of Hannibal's elite corps, and the two armies stood poised and ready. The Romans had routed Hannibal's first two lines and put the elephants on the run;

now they were faced with 25,000 seasoned veterans eager for battle.

Indicative of Roman coolness, Scipio sounded recall and moved to reorganize his weary troops within bowshot of the waiting Carthaginian lines. In the early stages of the fight, Scipio had developed a wide frontage and enveloped the Carthaginian wings. Now, ranged against a line as extensive as his own, and stronger, he saw the need for concentrating his forces into a tight mass to deliver a stunning shock of missiles.

He closed the *hastati* in, shoulder to shoulder, and placed them in the center. The *principes* and *triarii* were similarly positioned on the flanks. Vulnerable in case of breakthrough, the new formation mounted sufficient strength to achieve the desired effect with one big "if." His cavalry, still in pursuit of their opposite numbers, must get back in time to check a Carthaginian envelopment.

As the final phase of the great struggle opened the two lines charged each other with the greatest fury. Being comparable in spirit and arms, the armies literally tore up one another, the issue being undecided for a considerable time. Had the outcome depended upon infantry alone, Hannibal might have won. Scipio had guessed well, however, for at the very height of the carnage, Masinissa and Laelius came thundering back onto the field and cut down the Carthaginian infantry like ripened wheat. Of those who attempted escape few got away. Hannibal's army was destroyed. Casualty figures vary.



Polybius gives the Roman losses as 15,000 killed and a like number wounded. He lists 20,000 Carthaginian dead, and an even greater number of prisoners taken.

Roman Supremacy Achieved

The supreme importance of Zama cannot be denied. By deciding who should rule in the Western Sea, the battle set the stage for Roman supremacy throughout the entire Mediterranean area. Spain was converted into two Roman provinces; Syracuse became a Roman province; Rome established protectorates over the important Numidian populations; and Carthage was reduced from a powerful military state

to a defenseless mercantile city. As Cannae was the high watermark of Carthaginian power, Zama was the nadir. Zama broke the Carthaginian back. The triumph is not explained by faulty Carthaginian military conduct. It is explained by the indomitable will of the Roman general and his dedicated army. No setback, no defeat, no disappointment could deter them from their appointed task. It is this spectacle of individual genius overcome by analytical perseverance which lends the Second Punic War its special flavor.

As time passed the Roman Army built up a network of superlative Empire defenses. A great deal of time and energy was spent on these projects, since through them Rome was able to control its distant territories. Frontier roads received blockhouses and signal stations. Boundaries were marked and barriers set up. Dikes, canals, aqueducts, and bridges were erected, and the army had a hand in all of these things.

Decline

However, the growing provincial character of the Roman Army was its downfall. With disaster at home external troubles arose. The frontiers were robbed of troops to quell internal troubles, and the provinces rebelled. The legions policed the provinces as best they could, but could be stretched just so far without breaking. After the reforms of Diocletian and Constantine the legions were reduced in numbers to something just over 1,000 each and redistributed throughout the Empire.

Thus thinly spread, the legions found it difficult to deal with the increasing growth of armies threatening from without, and Rome was forced to adopt a policy of mixing drafts of barbarian troops with the legionnaires in the provinces. By the end of the second century A. D., even top commanders were Teutons, Franks, Spaniards, and other provincials, and the army in its hybrid state grew weaker. By the end of the fifth century, Alaric sought to obtain a share in the Empire but was rebuffed. He sacked Rome.

The barbarian hordes finally were broken at Châlons by united Roman and Visigothic armies, but thereafter the Roman Army never again rose to its former position of power and glory. This was not the fault of the army, but rather of Roman administration and foreign policy. Overextension and corruption were found to undo the fabric of the Empire.

Conclusion

The Roman Army brought organization and discipline into the military science in an age when little of either existed. It proved that with proper tactical manipulation, the few might defeat the many. It was not only courageous, as were its adversaries, it was aggressive, adaptable to change, and inventive. In every way, it was one of the outstanding military machines of all time.

The crux of the matter is having people who are not merely able to make weapons or equipment function, but who also can exercise the judgment to know when to use them, and how to combine them to the best advantage.

General Lyman L. Lemnitzer

Airborne Assault in Nuclear Battle
When and How

Lieutenant Colonel William P. Tallon, Jr., *Artillery*
1st United States Cavalry Division

SINCE the end of World War II the United States Army has developed new tactical concepts to utilize the combat power of nuclear weapons and missiles and to defend and protect our forces against them. Basically, enemy use of nuclear weapons and missiles requires all major Army forces to disperse in order to survive and requires them to be more mobile than their opponents in order to maneuver with success. From the offensive and defensive point of view, firepower is exploited through mobility.

The ability of Army forces to move freely by air or surface means is affected by the degree of command of the air existing at the time and in the area of concern. Field Manual 100-1, *Doctrinal Guidance Statements*, defines this condition as follows:

Command of the air is the degree of capability one force has over another which permits the conduct of air operations by the former at a given time and place without prohibitive interference by the air force, guided missile and/or air defense artillery action of the opposing force.

Nuclear weapons and air defense missiles are within the scope of the preceding definition.

Concepts of airborne operations have been shaped by improved airborne organizations, improved means of aerial mobility, and the advent of nuclear weapons. These concepts are an important part of the Army's over-all development of ways and means of meeting and destroying enemy forces quickly wherever they may be. And while the concepts described here are intended primarily for the use of the airborne division in deep attacks, the ideas expressed also have direct application to the air-landed infantry division and to any force conducting an assault by helicopter or short takeoff and landing-vertical takeoff and landing aircraft.

The US Army airborne division has 11,486 men, weighs about 8,500 tons, total, with three days' accompanying supply. Strategic moves are made by the airborne division using heavy transport aircraft to move to staging areas. These moves are made in *stream* and the division does not arrive in mass. The strategic destination is selected within the operational radius of medium transport aircraft and the division can move its entire assault echelon (4,500 tons—10,000 personnel) in *C-119*, *C-123*, and *C-130* type aircraft. Its parachute assault operational radius when delivered in mass is limited by the type transport aircraft available. The parachute operational radius for the *C-130*, now replacing the *C-119* in the Active

The use of nuclear weapons and missiles on the battlefield of the future will have no more profound effect in principle on the conduct of airborne operations than they would have on other types of operations

Air Force, is 1,500 miles. Thus a US Army airborne division can exploit nuclear bombs and intercontinental ballistic missiles or smaller tactical missiles to a similar distance. These nuclear weapons can be employed before and after the airborne assault to destroy enemy forces capable of interfering with the operations of the airborne division.

From the viewpoint of balanced, ready combat power per ton mile of airlift required, the US Army airborne division is the most efficient type division available in the Armed Forces. For this reason airborne divisions are the backbone of the Strategic Army Corps (STRAC) and a versatile, key element of our limited war deterrent forces. Properly used, the airborne division is a powerful tool on the nuclear as well as the nonnuclear battlefield. Its use on the nuclear battlefield will be discussed here.

A question that arises frequently in the most general form is, "When and how can we mount airborne operations of a significant scale considering the enemy's nuclear threat and air defense capability?" The answer to this question is the same as would be given to a similar question concerning when and how a corps on a developed nuclear battlefield could launch an attack successfully.

Lieutenant Colonel William P. Tallon, Jr., received his commission in 1942. During World War II he served with the 8th Field Artillery Battalion, 25th Infantry Division, in the South Pacific and with the 790th Field Artillery in the European theater of operations. Other assignments include duty as an Assistant G3, Headquarters V Corps; battery commander, 456th Airborne Field Artillery Battalion, 82d Airborne Division; S3 and executive officer, 319th Airborne Field Artillery Battalion; and 7th Army Artillery S2 and in the Plans Division, G3 Section, Headquarters, 7th Army. A graduate of the Artillery Officers' Advanced Course and of the 1952-53 Regular Course of the U. S. Army Command and General Staff College, he was assigned to the faculty of the College in 1956. Since August 1959 he has been in Korea where he is commander of the 2d Battalion, 19th Artillery, 1st US Cavalry Division.

Prerequisites

In airborne operations, as in other ground offensive operations, *command of the air* is a prerequisite. When it is attained, major ground offensive operations can be launched. The same applies to airborne operations. The degree to which command of the air must exist varies with the size, depth, and duration of the airborne operation. The required degree of command of the air is attained and maintained by preliminary and continuous application of *offensive counterfirepower operations* through the application of artillery, guided missiles, and air force power against similar hostile means prior to the forces being airborne and through active air defense means. Unconventional Warfare operations and electronic warfare operations are combined and coordinated with offensive counterfirepower operations to neutralize hostile air defenses, field artillery, guided missiles, and air force power before the operation is executed. These operations employ a wide variety of means and techniques. They vary from the simple to the ultracomplex. Illustrations of the means and techniques include cutting power and communication cables, sabotage or attack of power plants, antennas, and fuel supplies, residual radiological contamination of launching sites, and electronic interference with enemy radar and other early warning devices. Special Forces teams and guerrillas will in this way *team up* with the operation of highly complex missile systems and electronic countermeasures devices.

Operations to gain command of the air are not conducted by airborne forces. However, airborne forces exploit the favorable conditions created by these operations by utilizing the characteristics of modern transport aircraft in order to

seize territory swiftly beyond the immediate reach of other ground forces.

It must be recognized that *complete* command of the air seldom can be attained since this requires total destruction of the enemy's aviation, guided missiles (surface to surface (SSM) and surface to air (SAM)), and artillery. However, attainment of the prerequisite degree of command of the air does indicate that:

1. *The enemy's freedom of selection of the means of employing nuclear weapons has been limited before the assault.*
2. *His reaction time to the airborne assault will have been extended.*

To take advantage of these two general conditions, the airborne force must move swiftly in the mounting phase, air movement phase, and the assault phase of operations in the objective area.

Regardless of the speed of their actions, airborne forces must take appropriate measures to minimize their vulnerability to remaining enemy nuclear weapons and air defense operations.

Vulnerability

The vulnerability of airborne forces to enemy nuclear attack is determined by their dispositions and dispersion during the mounting, air movement, and assault phases of an airborne operation. During these phases the vulnerability of airborne forces to nuclear attack differs from that of other tactical forces in their normal operational role and environment. They are extremely vulnerable to enemy nuclear attack when troops and aircraft are together during mounting, air movement, and immediately after personnel or assault aircraft have landed in the objective area and are unprotected from initial effects of nuclear weapons. In the objective area they have no foxholes, armored vehicles, or a developed warning system until after the assault phase. The over-all vulnerability of airborne forces to enemy nuclear attack can be reduced by minimizing the time spent in execution of each phase of the airborne operation.

Mounting Phase

Vulnerability during the mounting phase is minimized by marshaling in dispersed base camps and utilizing numerous, minimum criteria departure airfields. Base camps and departure airfields are separated by distances selected to avoid heavy casualties and severe damage to equipment of forces in adjacent base camps or departure airfields from a single enemy nuclear weapon. These distances will be determined by an estimate of the yield of the nuclear weapons most probable of employment by the enemy in accordance with his capabilities at that time. Every effort is made to minimize the time troops and aircraft are together prior to takeoff, as well as their numbers on any one departure site.

Each base camp is occupied by an assault element (task forces of two or three infantry companies, reinforced) of the airborne battle group. Within the base camps passive means of defense—to include camouflage, circulation control, and individual and group shelters—are employed to afford maximum protection to personnel from nuclear weapon effects. Base camps are located to facilitate quick movement (preferably during darkness by motor or aircraft) to minimum criteria departure air facilities.

Most departure air facilities are not habitually occupied by transport aircraft. The facilities may vary from suitable fields and strips of road or highways to small civil airfields or active or inactive airbases. At the latest possible time air transport units move minimum size serials to the departure airfields. Selective preloading of heavy equipment and bulk supplies will reduce marshaling of personnel to a matter of a few hours. Aircraft are fully fueled and crews briefed prior to the move to these pick-up points where fuel tanks

are "topped off" and final briefings completed.

The area containing the base camps and departure strips are under the protection of air defense forces. Security is increased by marshaling troops and aircraft under cover of darkness or low visibility. Electronic countermeasures and deception are intensified at this time.

Air Movement Phase

Vulnerability during air movement is minimized by employing multiple routes and small aircraft serials moving to the objective over a wide area. Normally, one serial carries an assault task force to one landing zone. The size of the serial is determined by the size and mission of the airborne task force it must lift. This may vary from one to three infantry companies reinforced. En route to the objective area maximum advantage is taken of the protection afforded by friendly air defense forces.

Routes to the objective area over enemy held territory are selected to exploit the effect of earlier offensive counterfirepower operations and other operations against enemy air defenses. Column cover and armed reconnaissance normally are employed to precede and protect troop carrier serials to reduce to a minimum the number of surviving enemy air defense artillery batteries that are capable of attacking the airborne forces en route. Low altitude approaches over enemy territory reduce the vulnerability of forces en route to the objective area by taking advantage of radar and electronic defilade. Aircraft serials and columns are separated en route by varying altitudes and distances sufficient to avoid destruction of more than one serial by the effects of a single enemy air defense nuclear weapon which may survive the preparatory fires. Electronic countermeasures, deception programs, and Unconventional Warfare operations also are employed to reduce the effectiveness of remaining enemy air defense forces. In the vicinity of the assault objectives, aircraft serials and columns converge as required to permit simultaneous delivery of assault task forces of the battle group combat teams.

Assault Phase

Operations by the airborne assault forces are most vulnerable to enemy nuclear weapons attacks in the objective area during the assault phase. This is because of the enemy's ability to employ, in the objective area, all of his remaining nuclear delivery systems, including prepositioned weapons, all of his intelligence means, and to exploit with ground forces those nuclear weapons which may be employed against the airborne force.

Vulnerability of airborne forces during the assault phase is minimized by the use of massed nuclear and/or nonnuclear fires immediately preceding the assault. Assault elements by landing on or as near as possible to their assault objectives reduce the time required to seize these objectives. The assault elements usually are task forces of less than battle group size. Dispersion at battle group and division level is achieved by landing assault task forces on or near each assault objective. Task forces seizing objectives subject to simultaneous assault are separated by distances designed to avoid neutralization of more than one assault task force by a single enemy nuclear weapon. After landing, airborne assault forces develop the situation quickly, and progressively adopt dispositions similar to those used by troops conducting other ground operations. Thus their vulnerability in the objective area soon after the assault is no greater than the vulnerability of other ground troops.

Preassault Bombardment

The offensive use of nuclear weapons in preassault bombardment and the surprise achieved by the airborne assault permit rapid reorganization, accomplishment of initial tasks, and adoption of passive meas-

ures for protection against nuclear attack.

The use of nuclear weapons for preassault preparation and for operations subsequent to the assault now permits airborne forces to plan landings and operate in areas where the enemy may have existed in strength. Following are some of the considerations which apply to the use of nuclear weapons in support of airborne operations, and which are unique to such operations.

The purpose of the preassault bombardment is to reduce enemy resistance in the objective area so that landing, reorganization, and accomplishment of initial tasks may proceed with minimum enemy interference. Because of the susceptibility of airborne forces to disruption during their early moments on the ground, the fractional damage desired against enemy targets may exceed that required in other type operations.

Because of range and accuracy considerations it is likely that the delivery of nuclear weapons for the preassault strike will be by Air Force or Navy agencies employing low- and medium-yield nuclear weapons. It is important that Army doctrine prevail in their employment. Because of the close relationship between the preassault nuclear fire plan, the landing plan, and the ground tactical plan, allocation of nuclear weapons fires for the preassault strikes normally should be made by the joint force commander to the level where the necessary coordination with the ground tactical plan can best take place. This will usually be the corps or division level. The allocation must include authority for prescribing the details of employment regardless of the delivery systems used.

The preassault bombardment should be made in mass insofar as technical considerations permit.

Contingency requirements expressed in the commander's guidance for preassault nuclear strikes are no different in most respects than for support of a ground attack. Troop safety considerations are simplified in that normally, friendly troops will not be exposed to effects of the nuclear explosion.

Maximum surprise, shock, and economy of effort are achieved by landing directly on assault objectives. When nuclear weapons are to be used in the objective area to precede the airborne assault elements, there is a special problem concerning residual radiation on drop and landing zones. This problem is magnified if the drop or landing zone coincides with an assault objective and a desired ground zero (DGZ) (Figure 1). Nuclear weapon employment which may result in residual contamination is planned carefully so that the hazard to the assault force is reduced as much as possible.

Surface Bursts Avoided

Surface bursts in the objective area preceding the airborne assault by a few hours are not desirable since there would be a crater and a large intense residual radiation hazard from fallout on, and downwind of, the actual ground zero. Either of these conditions would deny the use of desirable drop and landing zones. The assault would have to be delayed until the actual area of fallout could be determined, and until the intensities decay to an acceptably low level. Since an air burst probably will be planned at a fallout safe burst height, this leaves only the problem of neutron induced gamma contamination. The hazard from neutron induced gamma activity may be held to manageable proportions by displacing the DGZ off the drop zone and accepting the consequent increased yield necessary to achieve the required casualty radius. (The arguments presented assume the worst possible case—that is, when the enemy force is directly *on* the drop zone or landing zone.)

Another practical way to minimize the undesirable features described is to raise

the height of burst to the point where the 2 roentgens per hour line is as small as practical, and accept a delay in the generation of enemy casualties from radiation received at the time of burst out to the required casualty radius (Figure 2). The accuracy (expressed in CEP, circular error probable) of the aircraft or missile system used to deliver a preassault nuclear strike will determine how much the location of the actual ground zero and the line denoting the limit of the area of significant (2 roentgens per hour) residual radiation will vary from the planned ground zero (Figure 3 and Figure 4).

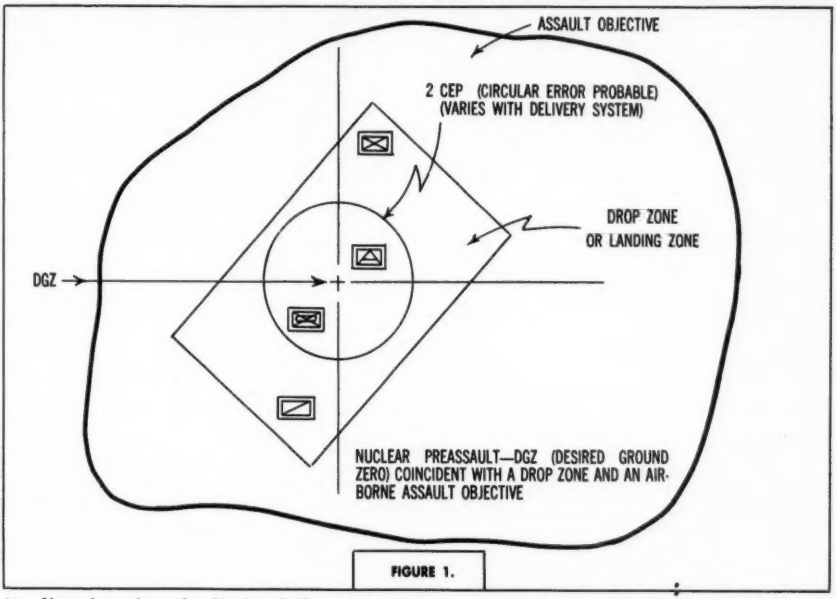

ASSAULT OBJECTIVE
2 CEP (CIRCULAR ERROR PROBABLE)
(VARIES WITH DELIVERY SYSTEM)
DROP ZONE
OR LANDING ZONE
DGZ
NUCLEAR PREASSAULT—DGZ (DESIRED GROUND ZERO) COINCIDENT WITH A DROP ZONE AND AN AIRBORNE ASSAULT OBJECTIVE

FIGURE 1.

The commander's guidance should include either a statement of the maximum allowable total dose to be received by assault troops from residual radiation, or a qualitative statement of the equivalent degree of risk he is willing to permit the assault troops to take. For example, he may say:

Employ the preassault nuclear weapons so as to permit assault troops to conduct operations in the vicinity of their drop and landing zones for one hour without exceeding a total dose of ___ rem from residual radiation effects.

This commander would have to have an exceptional grasp of the details of nuclear weapons employment and to have made a preliminary analysis based on fairly detailed calculations, and a very accurate knowledge of the effects of radiation total doses on the human body. It is more reasonable to expect a commander to express his guidance as:

Employ the preassault nuclear weapons so as not to exceed a total dose from residual radiation equivalent to moderate risk from initial radiation to exposed warned personnel.

Timing Preassault Bombardment

Creation of physical obstacles to parachute, helicopter, or assault aircraft landings naturally should be avoided also. The

timing of the nuclear preassault bombardment introduces two conflicting requirements:

1. The requirement to take maximum advantage of the initial shock of the bombardment and to prevent enemy recuperation.

2. The requirement for assessment of the results of the bombardment and, based on this assessment, for restrikes, where necessary, or for a change of the loading plan of a particular task force. The damage assessment and the decisions resulting therefrom may have to be made while the airborne force is en route to the objective area.

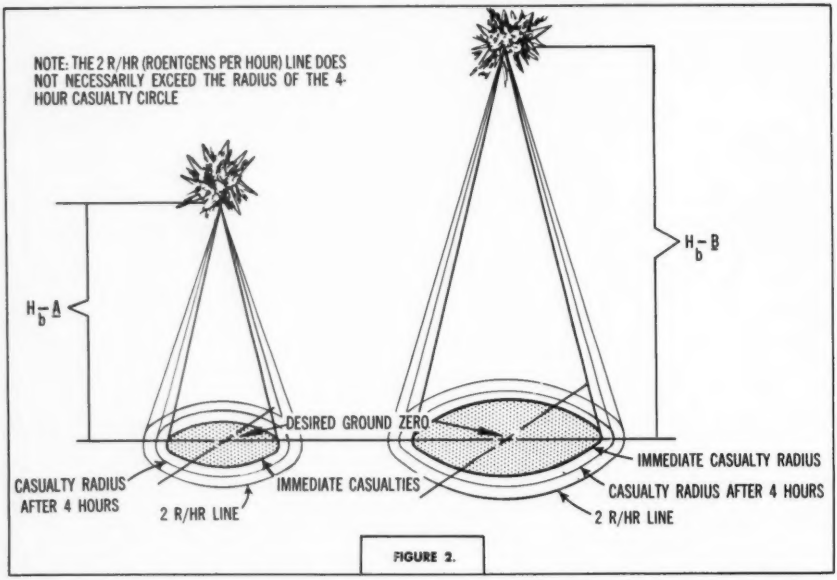

NOTE: THE 2 R/HR (ROENTGENS PER HOUR) LINE DOES NOT NECESSARILY EXCEED THE RADIUS OF THE 4-HOUR CASUALTY CIRCLE
$H_b - A$
$H_b - B$
DESIRED GROUND ZERO
CASUALTY RADIUS AFTER 4 HOURS
2 R/HR LINE
IMMEDIATE CASUALTIES
IMMEDIATE CASUALTY RADIUS
CASUALTY RADIUS AFTER 4 HOURS
2 R/HR LINE

FIGURE 2.

In order to meet the first requirement the airborne assault elements should follow the preassault bombardment by something less than four hours. This is based on the currently valid assumption that the casualty radius of a nuclear weapon increases until about four hours after the burst. Although the radius may continue to increase after that, it is not a true gain since it is estimated that recuperation of the target will increase more rapidly after that time.

To meet the second requirement the assault must be timed to permit the actions described. Missiles or combat aircraft must be held in readiness for restrikes. Troops must be briefed prior to takeoff on assembly procedures and tactical plans in case it is necessary to land on alternate drop zones. It is estimated that an hour or more would be needed to evaluate the situation and execute alternate plans. Therefore, the assault should be timed at least an hour after the preassault strikes.

The commander exercising joint control must establish a tactical operations center before the assault echelon takes off from the staging area strips. He must be able to make decisions affecting the airlift Air Force elements, the Army airborne units en route, and the supporting missile and Air Forces. These decisions should be aided

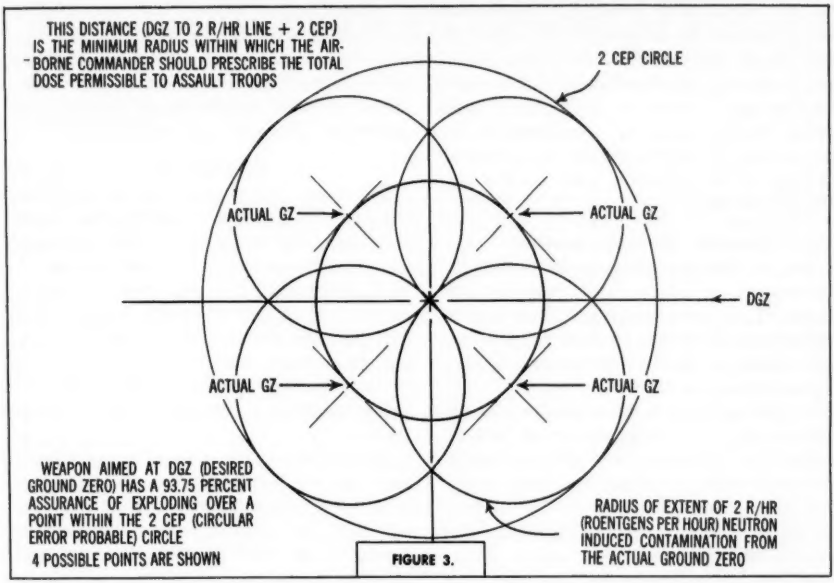

THIS DISTANCE (DGZ TO 2 R/HR LINE + 2 CEP) IS THE MINIMUM RADIUS WITHIN WHICH THE AIRBORNE COMMANDER SHOULD PRESCRIBE THE TOTAL DOSE PERMISSIBLE TO ASSAULT TROOPS
2 CEP CIRCLE
ACTUAL GZ
ACTUAL GZ
DGZ
ACTUAL GZ
ACTUAL GZ
WEAPON AIMED AT DGZ (DESIRED GROUND ZERO) HAS A 93.75 PERCENT ASSURANCE OF EXPLODING OVER A POINT WITHIN THE 2 CEP (CIRCULAR ERROR PROBABLE) CIRCLE
4 POSSIBLE POINTS ARE SHOWN
RADIUS OF EXTENT OF 2 R/HR (ROENTGENS PER HOUR) NEUTRON INDUCED CONTAMINATION FROM THE ACTUAL GROUND ZERO

FIGURE 3.

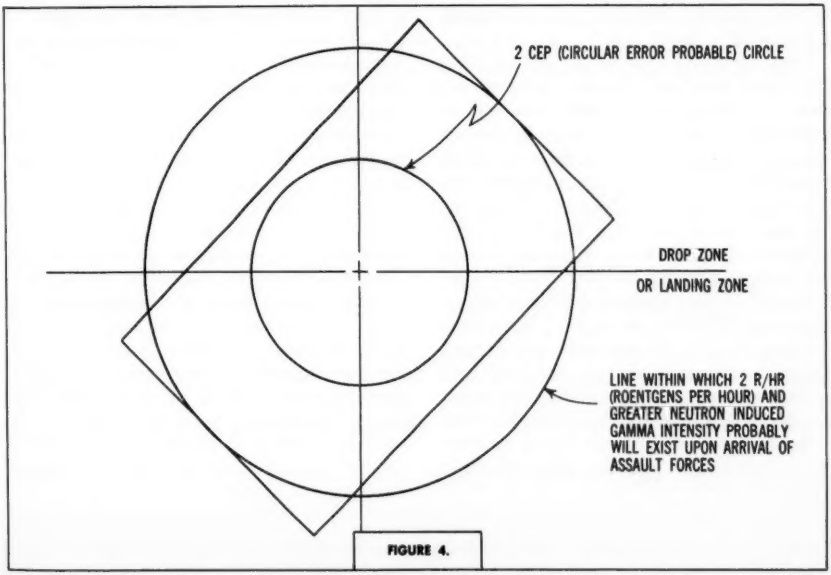

2 CEP (CIRCULAR ERROR PROBABLE) CIRCLE
DROP ZONE
OR LANDING ZONE
LINE WITHIN WHICH 2 R/HR (ROENTGENS PER HOUR) AND GREATER NEUTRON INDUCED GAMMA INTENSITY PROBABLY WILL EXIST UPON ARRIVAL OF ASSAULT FORCES

FIGURE 4.

by an exhaustive effort to preconceive every possible contingency with regard to the enemy, the weather, the execution of the preassault bombardment, and the air-landing plan. After the assault the command facility must be complemented by the immediate establishment of a similar facility in the objective area by the airborne division.

Support After the Assault

Use of nuclear weapons in operations subsequent to the assault resemble the usage of such weapons in other ground operations. However, there are some considerations of particular concern to airborne operations:

1. The airborne force normally will not have in the early phase the usual back-up support by corps and army delivery means. It usually will be reliant on those means which have been delivered to the airhead or on Air Force or Navy systems from outside the airhead.

2. The *Little John* system, to be organic to the airborne division, can accompany the assault echelon.

Other artillery such as the *Honest John*, the 8-inch howitzer, and the *Lacrosse* systems are all air transportable and may be delivered to the objective area in the follow-up echelon by air landing in heavy transport aircraft, providing suitable airfields are available. Delivery of any or all these means to the airhead gives the airborne commander a delivery system which is responsive to him under all conditions, including those of adverse weather. However, the extensive use of the missile systems in the airhead will require considerable effort to replace the relatively large components expended. Logistical considerations, therefore, may dictate that airborne forces call on Air Force or Navy combat aircraft or missiles when the choice exists.

3. Post-assault attacks are conducted by fire elements to include offensive air support to destroy enemy SSM capabilities within range of the objective area that have not been previously discovered and destroyed. These attacks are essential.

Conclusions

There are those who believe that once the airborne force is landed in the objective area, the enemy can locate it, drop a nuclear weapon upon it, and destroy it. If it is assumed that the enemy is going to put a multimegaton-yield weapon on a division size airhead, that division is going to become ineffective. However, the same line of reasoning can be applied to infantry division-armored division operations.

An airborne operation of a significant scale can be launched when the prerequisite degree of command of the air has been attained. The operation then can be successfully completed without incurrent prohibitive losses.

The prerequisite degree of command of the air usually will be determined by the commander who has the authority to order the force into action. It will vary with the size, depth, and duration of the operation. "Prohibitive losses" will depend on the importance of the objective and the mission.

The important point to bear in mind is that although there are different technical aspects to be considered because of the extensive use of aircraft, and the vertical nature characteristic of the airborne assault, nuclear weapons do not have any more profound an effect in principle on airborne operations than they do on other types of operations. In many respects airborne operations provide Army forces with the mobility required by the introduction of nuclear weapons into the field of military operations.

CONCEPTS OF MOBILITY

Captain Clinton E. Granger, Jr., *Infantry*
United States Military Academy

MUCH current military writing concerns the problems encountered in applications of the principle of mobility to modern warfare. It is the purpose of this discussion to clarify the implications of applied tactical mobility with respect to the present-day commander, and to stimulate thinking in this area of military technique.

The history of the military art is filled with examples of the advantages of mobility to conventional units, and with the successes of properly equipped, trained, and commanded mobile units. General Patton has come to represent the common American thought of the mobile unit commander, with respect to ground tactical mobility, while Generals Taylor and Gavin clearly have illustrated the advantages of airborne mobile warfare.

In Germany, General Heinz Guderian and Field Marshal Erwin Rommel have been identified closely with the development of "blitzkrieg" mobile warfare, and with the proper employment and utilization of mobile forces. Guderian is generally accepted as the first present-day major commander to recognize and use those principles expounded by the outstanding British military theorists, Major General J. F. C. Fuller and B. H. Liddell Hart, in the application of ground mobility to the German campaign in the Lowlands and France in 1940, and in the successes of the German Army in Russia in the earlier stages of that campaign. These German operations should be considered excellent examples of what may be accomplished with the application of commonsense to previously developed sound military doctrine.

The use of mobile warfare by Rommel in North Africa will long remain as an outstanding illustration of some of the finest tactical employment of armored, mechanized, and motorized troops the world has ever seen. Operating under the most adverse circumstances, lacking the barest essentials of logistical support, and subject to the whims of a politically influenced Italian General Staff, the accomplishments of the *Afrika Korps* astounded the Allies, and even created a false impression of Axis advantage in the evaluations of the German General Staff—or at least in the minds of the Führer and his close advisors.

Additional Examples

We can go deeper into history for other examples of the success achieved by various forms of mobile warfare. Certainly, the term "Jackson's foot cavalry" adequately illustrates the rapid movement of the Confederate infantry under General "Stonewall" Jackson in his brilliant campaign in the Shenandoah Valley in 1862. There were other Civil War examples: the federal campaign against Vicksburg, where, after numerous failures in conventional approaches to the problem, General U. S. Grant deliberately severed his tie

Mobile warfare concepts to be of maximum effectiveness must include not only proper employment of equipment and personnel, but ingenuity and a spirit of aggressiveness in the minds of commanders and staffs

with the Union lines of communication and outmaneuvered an alert and powerful enemy. This operation, carried out under incredibly difficult conditions, led to what is frequently considered the most crucial victory of the American Civil War.

Lee, in some of his more daring—and often criticized—campaigns frequently used mobility as the keystone for success. Antietam presents a good example of his ability to mass widely separated units in adequate time to meet a totally unexpected threat. At the same time, his single greatest tactical defeat was in the failure to provide for one of the most rigid requirements of mobile warfare: adequate reconnaissance. This occurred at the Battle of Gettysburg, where the Confederate cavalry was dissipated on useless raid operations, instead of acting as the primary source of intelligence concerning Federal movements and operations.

To study the campaigns of Napoleon is to examine examples of carefully ordered times of juncture and well-coordinated evolutions by groups of subordinate units. The French Army, under Napoleon, outmaneuvered slower reacting enemy forces through its capability to march greater distances each day than any other army of the period. This gave it a greater degree of mobility than contemporary forces, and enabled it to gain local superiority at the most critical point on the field of battle.

Captain Clinton E. Granger, Jr., was graduated from the United States Military Academy in 1951. He attended the Associate Company Officers' Course at the US Army Infantry School, Fort Benning, Georgia, and qualified as a parachutist the same year. He served in the Far East with the 45th Infantry Division in assignments varying from platoon leader to Assistant G2. Upon his return to the United States, he was assigned to the 1st Armored Division where he commanded an armored infantry rifle company and served in the G3 Section of the division. He completed the Infantry Officers' Advanced Course in 1957, and now is assigned to the staff of the USMA in the Admissions Division.

There are many other examples of mobility and mobile warfare throughout history. World War II brought a new dimension to war with the utilization of transport aircraft, gliders, and parachutes. This type of operation represents as much a part of mobility as do personnel carriers and tanks, and should be integrated into the thinking of commanders at all levels. A further extension, and an important one, is the present use of rotary-wing aircraft to carry out much the same type of operation. All are tools for the establishment of mobility, and all are effective under particular circumstances.

Mobile Warfare Concept

What, then, is "mobile warfare"? First of all, it is a concept in the mind of a commander. It is a way of thinking concerning the manner of conduct of tactical operations, it is full utilization of all possible means of battlefield transport to accomplish mass at the critical point and the critical time (and *only* at that point and time), and it is also the spirit of aggressiveness applied to tactics—both in planning and execution. Further, it is that form of warfare developed to counter the unsuccessful linear war which became a battle of attrition. When combined with a form of linear war it is a means of exercising economy of force, and is the key to mass, combined with surprise, maneuver, and the principle of the offensive. Mobility is the key both in operations and in the thoughts of the commander.

Those commanders and staffs unable to respond with a minimum of warning time, that require detailed orders for routine maneuvers, and do not develop techniques and procedures for rapid reaction, nor foster a spirit of independent command in their junior leaders will find themselves outgeneraled and outsoldiered on the battlefield of today, and even more in the battle zone of tomorrow.

The advocates of armored warfare have identified the mass employment of armored

units—tanks, armored infantry, armored and self-propelled artillery, armored engineers, and all the other elements of armored and mechanized formations—with the concept of mobile warfare. The thought is correct so far as it goes. Certainly, an armored division is admirably suited for mobile warfare, and wheeled and tracked vehicles can give men and weapons the required mobility, but this represents only a portion of the full possible mobility a unit may possess. Again, Patton, Rommel, and Guderian are identified with mobile warfare, and hence mobile warfare is identified with tank warfare. However, the operations of the German airborne forces in the attack on Crete, the use of Allied parachutists and glider troops in Africa and Europe, and even the parachute delivery of an airborne unit in the recapture of Corregidor from the Japanese are all examples of a form of mobile warfare.

Other Considerations

Even thinking in terms of wheeled, tracked, and air-transported troops falls short of the over-all concept. The available wheeled and tracked equipment, or air-delivered equipment, must include normal supporting fire weapons: self-propelled or air-transportable artillery, mobile missile launching units, organic close support mortars, and such other means of fire support as may be developed in the future. At the same time, a system of logistical support must be evolved to give the mobile units the necessary supplies and equipment to accomplish the assigned missions.

Plainly inherent in mobile operations is the serious problem of command and control through communications. Increased speed in execution of any type mission will radically shorten the time available to the commander and his staff to respond to changing situations. If reliable almost instantaneous means of direct communication are not available, the time allowed to respond to unknown situations may well be decreased below the point where success can be exploited or where defense may be directed. It has become increasingly apparent that some of the most essential items of equipment required by a mobile force—regardless of the means of establishing that mobility—are represented by an adequate system of voice radios for use by commanders at all echelons.

Logistically, mobile warfare presents problems of a magnitude never experienced before under any form of linear or columnar warfare. Rapid movement and maneuverability will make attacks on enemy logistical installations a matter of normal procedure. The operations in North Africa in World War II are excellent examples of this, but the full utilization of mobility may conceivably add great depth to the threat, and bring this type situation to most other theaters as well.

Thus far the single most important and certainly the most decisive advance in weapons currently available for use in modern war has not been mentioned. The advent of tactical types of nuclear weapons, with a wide variety of delivery systems and available in many yields, has negated linear warfare as it has been known in the past.

Linear Warfare

Linear warfare still is very possible, and may well be practical under specific circumstances. However, the main line of resistance (MLR) of Korea is as obsolete for general war as the thin red line of British history. It is, at the same time, most interesting to note the Soviet defensive technique of parallel linear positions in great depth, with switch positions serving to channelize attacks within such a defense. The purpose of channelizing the attack is, of course, identical with the American concept of forcing an enemy to mass in order to form a suitable target for a nuclear weapon. Extended linear positions of this type most certainly will be tied to natural and artificial obstacles,

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further assisting in directing an enemy into a predetermined "killing zone."

In order to penetrate a series of linear positions with ground troops, the commander is forced to utilize large numbers of nuclear weapons to create the necessary initial breach. The attacker also will be forced to mass—at least for a very short period—in order to pass his forces through the penetration and to enter the exploitation phase. Further, with great depth to linear positions, reasonably large flank forces will be required to maintain the corridor punched through the enemy defenses, and to secure it from attack by conventionally armed and equipped forces. It is only reasonable to assume that targets so presented will become logical for the enemy use of nuclear weapons.

Such a linear defense can be effective on the modern battlefield if it is adequately supported with mobile reserves and defensive nuclear fires. However, establishment of such positions requires great manpower resources both in riflemen and in engineer troops. It is here that the Soviet Union has a most decided advantage over the United States and the North Atlantic Treaty Organization nations.

Mobile Defense

Another solution to the problems of nuclear weapons on the battlefield is that presented by the mobile defense in one of the several accepted forms. Generally, this consists of a series of self-sustaining strong points linked by reconnaissance units, surveillance equipment, and radio. Support is rendered by a very strong mobile striking force for counterattack and subsequent destruction of the attacker.

On the nuclear battlefield it will be the aim of the defender to force the enemy to mass his forces and present a lucrative target for a moderate yield nuclear weapon. A position consisting of strong points dispersed and in depth, using mines and other artificial obstacles, can channelize major enemy units. While it may be possible for the enemy to make deep inroads into such a battle position, and to destroy known individual friendly strong points, he must mass in order to achieve the required local superiority.

This is, of course, a great oversimplification of both the linear and strong point defensive thinking, but it will serve to illustrate the problems which face both the attacker and the defender in either case. It must always be assumed, however, that an attacker who is willing to pay the price in men and equipment, and who can back his attack with adequate numbers of delivered nuclear warheads, can penetrate any position which can be constructed and manned.

If achieving a ground penetration becomes too costly, then perhaps the use of vertical envelopment—probably through the use of helicopterborne forces—might be the best *initial* form of attack. The use of such forces to disrupt rear areas, eliminate delivery means for nuclear weapons, destroy facilities for communications, and tie down reserves would greatly simplify any operation on the ground by mobile, mechanized, or armored units. The key to this form of mobile warfare lies in the integration of the mobile ground and air-transported elements on a low enough level to make such an operation a commonplace practical approach.

Integrated Mobile Warfare

Let us examine how an integrated mobile warfare operation, making full use of all present forms of mobility, might be conducted.

Assume, first of all, a mobile defense —a strong point system of forces, each located far enough from the adjacent battle group (or comparable unit) to prohibit casualties in both from a single moderate-yield nuclear weapon. (It is certainly not feasible to position strong points at such a distance that a multimegaton weapon would not be able to affect two—the dis-

tances would be so great that the enemy could drive between the strong points in oxcarts and still escape detection.) These strong points should be linked by a strong reconnaissance screen, such as might be established by elements of an armored cavalry regiment, and by an excellent system of communications using all available means.

Additional linkage and early warning should be supplied by a variety of surveillance devices extending from individual observers equipped with radios, through helicopters and fixed-wing aircraft, and including TV, infrared, and radar equipped drone aviation for target acquisition.

The various positions of the strong point defense naturally would vary in density from front to rear. The same density would not be required far to the rear of the area of contact between friendly and enemy reconnaissance screens. The depth of the position would be great, extending not only through divisional positions, but through the corps and army areas as well. Included in the over-all plan would be alternate and supplementary battle group positions, much the same as primary and alternate weapon positions are employed within the rifle company today. This would assist shifts of primary forces and enable easy utilization of the reserves to block any reasonable enemy penetration. Such measures also would assist in planned deception.

Into this prepared defense it is probable that the enemy might pour the massed fire of many battalions of artillery in the attack. In addition, he might use tactically delivered nuclear weapons against known friendly major positions. The methods of delivery could vary, but might well be an army rocket or gun delivered weapon, since these do not have some of the weather limitations of the aircraft delivered warhead.

Following this massed fire, which probably would be directed to blind observation and destroy the communications of the friendly troops—thus eliminating or at least lessening the immediate possibility of a counterattack by nuclear fire—a mobile force would drive forward through the reconnaissance screen. This force would not attempt to destroy the strong points, but probably would bypass them where possible in order to gain access to rear areas more quickly. This points out the necessity for placing the strong points in positions where they can occupy or control logical avenues of approach.

Operating against a properly prepared defense, the enemy attack might penetrate only five miles or less until a combination of well-placed strong points, impassable terrain, and artificial obstacles would force the enemy to present a target where nuclear weapons, prepositioned or delivered by any one of the means now available, would blunt the spearhead.

Following the containment of the penetrating forces, the follow-up elements of the enemy would be sealed off and destroyed piecemeal by conventional and nuclear weapons. The wide variety of yields now available to the commander using nuclear weapons makes this type operation both reasonable and desirable. Low kiloton weapons would accomplish difficult tasks with little risk to friendly troops. Communications and surveillance must again be emphasized for success.

With the enemy probably disorganized and having suffered substantial losses from the counterattack by fire, the next logical step is counterattack with friendly mobile elements.

Offensive More Costly?

At once the thought comes to mind: If the defense is strong enough to contain and destroy an enemy, would not the defense as a system of warfare be more advantageous? Would the assumption of the offensive prove more costly than the value gained in destroyed enemy units, in

critical terrain seized, and in enemy equipment and personnel eliminated from the battle?

If we assume as an approach to the attack an operation along the lines already outlined, this may be possible. There might be a partial parallel to the linear war of attrition of World War I experience. Therefore, it will be necessary to seek out the weakest points in an enemy defense and strike there first, using any advantages we may have in weapons and mobility—and in techniques.

Is the linear system weaker than a strong point defense? Probably not, if manned by an adequate number of troops, and if the enemy is prepared to lose personnel and equipment to a greater degree than that usually considered reasonable. Here, the enemy would have a distinct advantage in his numerically superior manpower. It can be defeated, but at what cost? Where does the weakness lie? What is the solution to breaking such a defense so that the principle of the offensive may be exercised to the utmost?

The enemy reserves? Such units would, of course, be prime targets, but it is not reasonable to assume that they could be located and identified—and then destroyed—any faster because of increased target emphasis. This is an important consideration and one which deserves a great deal of intensive study. However, destruction of enemy reserves alone will not create the desired destruction of large segments of the enemy forces, nor will it gain a foot of critical terrain.

A major portion of both the attack and the counterattack is conducted by nuclear fire. Perhaps the enemy delivery means would be the best target? How does one attack delivery means, and ensure that *all* are rendered ineffective or destroyed at the time the friendly forces are massed in counterattack? First is location and identification, then counterbattery (if the term can be stretched a bit) fire from nuclear and conventional weapons. However, since it takes only one well-directed projectile to create havoc in a concentrated unit, it would be necessary to ensure *full* kill of enemy delivery means, or to render them ineffective in other ways.

Such other ways might include concealing formations from an enemy by denying his observation through camouflage, use of chemical smoke, full use of available terrain, and—a technique which probably will become much more common in any future conflict—extensive use of operations at night.

Still, there is nothing here to throw an enemy completely off balance. Reasonable losses in units, commanders, communications, and weapons with a nuclear delivery capability can be expected. What else can be done in normal operations to introduce problems which it is hoped will be insurmountable to an enemy?

Vertical Envelopment

Here is the time to utilize helicopter-borne forces such as the SKYCAV units now under test in the US Army, or to mount standard units in helicopters and move behind the enemy lines, or most of the lines, with the mission of destroying command posts, of disrupting traffic on roads (some traffic may be supporting nuclear weapons), of locating undetected launching sites or reserves, and directing nuclear weapons against newly discovered targets. These air-transported troops should be mounted in light vehicles after delivery in order to retain their mobility, and should be equipped generally as reconnaissance units.

As far as possible, direct support should be rendered with organic Army aviation. Such Air Force aircraft as are capable of performing ground support missions will, in all probability, still be fighting for air superiority, or will be concerned primarily with enemy air installations. Air support would, of necessity, come from Army units—primarily light aircraft

directing the fires of conventional and nuclear weapons, and from helicopters mounting rockets and machineguns for flak suppression during air-lifted phases, and attack of point targets afterward.

These highly mobile forces, using both air and ground tactical mobility, operating in conjunction with conventional armored and mobile mechanized troops, and properly supported by an arm capable of achieving great mobility—artillery with adequate observation and communications—form an integrated offensive team for mobile warfare on the nuclear battlefield.

General Observations

This has been a very general discussion of some phases of the problems presented by recent changes in tactics, organization, techniques, weapons, and equipment. Some general observations can be drawn:

1. Dispersion is a necessity on the battlefield where nuclear weapons may be employed.

2. Excessive dispersion can lead to piecemeal loss of the major force.

3. Dispersion without full mobility in all units can lead to piecemeal defeat through inability to support at all times.

4. Any defense without adequate mobile reserves is subject to defeat.

5. Unit integrity must be maintained in the lowest self-sufficient unit—probably the battle group or armored infantry type battalion—if the unit is to function as a military team; hence, dispersion will be between units of this type.

6. The radius of destruction in larger nuclear weapons implies moderate risk or greater, even with maximum practical dispersion.

7. Mobile forces must be supplemented by adequate reconnaissance and by various means of surveillance of the battlefield.

8. Mobile units, or any other units, must be prepared to fight independently, with little of the on-call support that has been available in the past.

9. Supporting weapons, especially those possessing nuclear delivery capabilities, command posts, and communication centers, will become prime targets for nuclear weapons.

10. Logistic installations supporting mobile forces must possess the same degree and type of mobility, and must be prepared to provide their own security.

11. Deception, camouflage, and night operations will play an increasingly important role on any battlefield where nuclear weapons are employed.

12. Communications of increased range, flexibility, and reliability will be required to conduct either offensive or defensive operations.

13. Mobility is not accomplished by vehicles alone, although it is not possible without rapid transport. The concept of mobility is a way of thinking on the part of leaders at all levels of command.

14. Techniques of mobile warfare will change with the development of new equipment, and while principles may be related to the past, techniques must envision full utilization of all developments.

Conclusions

To be successful in a future war, commanders must exploit every advantage to the maximum. Success in the face of well-trained enemy forces with excellent equipment cannot depend on logistical support and overwhelming buildup—such as occurred in many instances in World War II—but rests with the aggressiveness of individual commanders. Clear-sighted understanding of the success which will crown an integrated effort by all the ground arms will come to the commander who uses the experience of history and a little American ingenuity on the battlefield of the future. Realistic application of learned principles, aggressive action, and proper coordination will bring victory to the commander who is prepared to exercise that capability which is the key to success—mobility.

The Staff and Modern War

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THE advent of nuclear warfare and other dynamic technological advances in the military field have demanded the development of new tactical and combat support organizations and concepts for their employment. Substantial progress now has been made in meeting this demand. Unfortunately, however, the advances made in these areas have not been accompanied by similar progress toward the solution of the equally urgent problem of ensuring that command and staff organization and doctrine keep pace with requirements for the control of these improved combat means on the modern battlefield. The present US field staff has undergone no basic change since its adoption in 1921. An *overall* analysis and study of the current US field staff is urgently required.

The United States Army Command and General Staff College recognized the acute need for critical examination of this important area two years ago, and, as a part of the College combat developments program, initiated a formal study of the current staff system. Study results, presently in the advanced stages of completion, will provide answers to many current and future problems of command and control. The staff organization developed therefrom is in consonance with the new organizations, weapons systems, and technological advances peculiar to the nuclear age.

Analysis of Current Staff

Greatly increased weapons and equipment capabilities, environmental complexities, increased speed of movement, and other elements which make up what we term "modern warfare" have combined at all echelons to place unprecedented demands upon the commander and staff. Nuclear weapons, together with the great strides being made in such areas as chemical and biological warfare, nonnuclear weapons systems, missiles, air and ground mobility means, electronic warfare, and combat surveillance all have contributed to this situation. Projected battlefield conditions will involve widely dispersed, hard striking, highly mobile, and specifically tailored forces operating over extended distances. Actions and movements will be rapid. Closely integrated tactical, tactical support, and administrative support forces will operate more independently and for more extended periods than in the past. Major displacements and decisive results will be accomplished more quickly.

This separation of forces and increased tempo of operations poses significant problems in ensuring the optimum employment of available resources and continuous support to combat elements. Administrative support operations must be more flexible in character. Procedures must be streamlined and simplified, overhead reduced, and functional responsibilities clearly established which eliminate competition and duplication and clarify staff relationships. In modern warfare the words offense, defense, retrograde, rear area security, and area damage control have taken on new meanings. Staff or-

Command and staff organization and doctrine must exploit modern technology and be based on realistic roles and operational environments of the army in the field in any type of war and under all conditions

ganization and doctrine must be designed to exploit modern technology, and it must be based on the realistic roles and operational environments of the army in the field in any type of war—situations short of war, limited war, and general war—involving both nuclear and nonnuclear operations.

Current Staff Weaknesses

Objective analysis of the activities of the current staff makes it readily apparent that improvement is required in numerous areas. Although it must be acknowledged that many of the weaknesses have been recognized previously in the field, corrective measures, when taken, have been largely piecemeal and based upon expediency. The total effect of these adjustments has resulted in only partial solution of the problem. Obviously, a more basic and coordinated approach to the problem of staff modification is essential.

Existing deficiencies in staff organization and functioning have much in common in that they are basically byproducts of the same organizational or doctrinal faults. These faults appear to stem largely from incomplete application, or lack of recognition, of certain fundamental principles of management, such as homogeneous grouping of functions, optimum span of control, unity of command and direction, and delegation of authority.

Both field experience and study indicate that each area of staff activity, by its very nature, bears *primarily* on one or the other of the two major functions of any field command—that is, the *operative function* (which directly accomplishes the primary mission) or the *sustaining function* (which supplies, maintains, and restores the operative means). At the major echelons of the field army, the operative function includes operations (G3) and intelligence (G2), and the sustaining function includes logistics (G4), personnel (G1), and civil affairs (G5), as well as rear area security and area damage control (collectively termed administrative support). Although the requirement for this groupment has been recognized in the field in varying degrees, as evidenced by echeloning headquarters and "on the spot" assignment of responsibilities, neither current doctrine nor current staff organization is fully compatible with these types of adjustments or modifications.

This incompatibility is evidenced primarily by weaknesses in those areas wherein the staff should be strongest. To be effective as an essential component of command the staff *must* possess certain capabilities and characteristics. The most important of these are:

- Faster staff reaction time.
- Improved span of control for the commander.
- Improved unity of the staff and of staff effort.
- More appropriate delegation of authority.
- Improved working groupments of homogeneous staff activities.
- Improved, integrated operations centers.

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- More effective integration of rear area security, area damage control, and administrative support operations.

Faster Staff Reaction Time

The increased tempo of future battles will dictate that the staff reduce the time required for obtaining information and converting it for use by the commander. Further, staff organization and procedures must decrease the number of individual decisions upon which the commander must act personally. Procedures and techniques established must minimize delays in the preparation and transmission of estimates, plans, and instructions. The effects of the requirement for speed, with no accompanying loss of accuracy, are reflected in the following areas of staff action: organization and function, equipment used, and procedures and techniques. Specifically, speed of action in all staff operational matters will require a reduction in the number of individuals reporting information to and furnishing advice to the commander; realignment and functional grouping of staff members to facilitate accomplishing the above; and the delegation of authority consistent with the assignment of these responsibilities.

Incorporated with these developments must be the corresponding and concurrent integration and use of modern electronic and mechanical equipment designed to speed, sort, collate, store, and furnish information as well as to transmit estimates, plans, orders, and instructions. A physical grouping of staff members will do much to ensure concurrent information and pooling of common resources, and will assist in providing means for rapid decisions. The effectiveness of the current coordinating staff in doing a job where time is *not* a governing factor is not debated. However, when speed of staff response is essential, the lack of authority and complex relationships inherent in the current system result in staff inertia and hamper unity of direction.

Improved Span of Control

Under current concepts the commander's span of control, as applied to his staff and his administrative support units, is excessive. In a typical division, approximately 34 individuals doctrinally have direct access to the commander. Combat units which accomplish the primary mission of the command constitute only one-fourth of this span of control. The remaining three-fourths consist of individual general and special staff officers and administrative support units. The tactical concepts of the modern battlefield and the requirement for increased speed of reaction dictate that intervening echelons of command be eliminated to the maximum extent practicable and that the commander's span of control as applied to combat elements be maximized. This is a well-recognized objective. However, increasing the span of control in respect to combat elements is not considered practicable without a significant reduction in the excessive span of control created by the staff and administrative support units.

Unity of the Staff

Current staff doctrine tends to divide or layer the staff into a general staff element and a special staff element. This has a divisive influence on staff operations and is not fully conducive to the most fundamental requirements of any staff—unity, harmony, teamwork, and singleness of purpose. The requirement for staff specialists is based on a need for specialized knowledge and skills in areas which, by their very nature, are relatively well-defined and limited. There is, however, no requirement that they, independent of the coordinating staff, act in concert; and their grouping into a separate special staff is not justified. Staff specialists should individually render advice at the staff level and should be integrated into the functions of the entire staff.

Doctrinally placing command authority over staff specialists at a level *above* the

coordinating staff officers, who are required to coordinate and integrate specialist activities and make use of their advice, heightens lack of unity in the staff. Doctrinal emphasis should be on *unity* and *cohesiveness* of the over-all staff rather than on separateness and independence of staff specialists. Lack of unity also is fostered by the doctrine which designates commanders of certain special arms and service units as special staff officers and, as such, members of the staff.

The concept of independent special staff officers becomes increasingly impractical when the ever-growing number of specialist activities inherent in modern war is considered; for example, tactical cover and deception, electronic warfare, and Unconventional Warfare. All of these activities logically can be considered as possible areas for new special staff sections. Further extension of the practice of obtaining necessary specialist advice as provided under the current concept will make the staff increasingly cumbersome and compartmented.

Delegation of Authority

Current doctrine does not clearly define the authority of the chief of staff, the authority of the general staff officers, or the relationships of the chief of staff, general staff, and special staff. Instead, current doctrine states that the general staff officer is under the command of the commander but "directed and supervised" by the chief of staff. Likewise the special staff officer is described as being under the command of the commander but "supervised, directed, and coordinated" by the chief of staff and "coordinated" by the general staff officers. While these terms all imply some authority, even experienced general staff officers cannot precisely distinguish between them.

Lack of clear delineation of the authority of the chief of staff results in widely varying concepts and local practices. This contributes to a lack of clarity, both in actual practice and in service school instruction, and fosters inconsistencies between the two. The French, British, and former German chiefs of staff *command* the staff. The Soviets use deputy commanders who command the major groupments of the staff. At the division level, the British, German, and Soviets provide adequate control of the staff without the use of a chief of staff. (The Soviet division "chief of staff" actually is the deputy for operations.)

The French staff and the US staff, which is largely derived therefrom, are the only systems which maintain that a general staff officer has no authority in his own right. However, in actual practice, it is obvious that in order to function effectively, any field staff must have some inherent authority and make some decisions. The degree of authority required increases with the need for faster battlefield reaction time. Thus the fact that the US staff, by doctrine, is *without the clear authority* that it must have to function makes the theory inconsistent with actual practice. This results either in inaction or in usurpation of the commander's authority, and is conducive to debate and delay in intrastaff coordination. Staff doctrine should provide the authority which the staff needs to function effectively. Further, this authority should be specifically defined so as to avoid misunderstandings, conflicts, and infringements upon the prerogatives of the commander. A staff without authority lacks the simplicity, responsiveness, and positive direction necessary for the rapid reaction required in modern war.

Staff Groupments

The over-all tasks of any organization, military or otherwise, are operations and administrative support. In military field organizations, operative management should have primacy over administrative management in the balance of staff organization since operative management is the main task of the military unit. Em-

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phasis on administrative management generally increases with the distance of the organization from end (tactical) operations. In the highest level military organizations, administrative management is more nearly coequal with operative management.

Good organization also demands the grouping of the functions involved in the over-all task into the fewest possible elements that are compatible with, and which lead to, ultimate performance by subordinate units. The subordinate units include tactical and tactical support units collectively considered as line units, and administrative support units. To attain maximum efficiency, there should be a corresponding working groupment of staff sections with the operative activities in one group and the administrative support activities in the other. Such groupments associate the staff functions with the geographical areas in which the units on which they devolve are located and operate, with the direction toward which their functions are oriented (the one on the enemy and the other on the supported force and its line of communications), and with the nature of the function (operative or sustaining).

The current staff structure of five general staff sections and approximately 17 or more special staff elements, without further working groupment, requires that coordination be effected with almost all the staff sections and elements on the bulk of staff activities. Further groupment of the staff, giving due consideration to the two major organizational functions, will materially reduce the amount and degree of coordination required, avoid duplication of effort and personnel resources, and decrease staff reaction time.

Integration of Operations Centers

The development of operations centers is a natural result of practical field requirements which necessitate the rapid integration, control, and coordination of a group of activities which cut across the responsibilities of several different staff officers, both general and special. The integration, control, and coordination required is for the entire functional area or group of activities—in one case operations and in the other administrative support. With respect to operations, two attempts have been made to solve the problem in the recent past. The tactical support center (TSC) and the army operations center (TAOC) concepts have both been tested and evaluated. The major deficiencies of the TSC concept were that the artillery officer, a special staff officer, controlled this staff agency and supervised, controlled, and directed other special staff officers' representatives and activities. Confused staff relationships and channels resulted from this concept. Additionally, the TSC effected control and coordination over tactical support actions only, and failed to include all tactical operations.

In the TAOC concept the G3 was charged with supervision of the internal operations of the center. Although the TAOC provided for more effective integration, control, and direction of tactical and tactical support operations, it suffered from essentially the same difficulties as the TSC. Making G3 responsible for the internal operation of the TAOC resulted in complex staff relationships and channels and had a tendency to subordinate the G2 operations functions.

As a result of these evaluations, Department of the Army in August 1959 approved a new concept for a tactical operations center (TOC). Under this concept the TOC operates under the direction of the chief of staff, but as in the TAOC concept, it operated normally under the supervision of the G3. The operations elements of the G2 and G3 sections constitute the nucleus of the agency. Flexibility in composition and functions of the various elements of the center are maintained to accommodate varying requirements.

With respect to administrative support, various concepts and agencies have been or are being considered, such as the division supply control point (DSCP), division logistical control center (DLCC), division logistical operations center (DLOC), and army logistical control center (ALCC). These concepts recognize the requirement for a logistical operations center for the effective control, direction, and coordination of the narrower field of logistics, as well as the closely related functions of rear area security and area damage control. The grouping of staff activities loses much of its effectiveness and speed of response, no matter how advanced the technical facilities furnished, unless a *single authority* exists to control each group. Current staff doctrine does *not* provide this single authority. The present staff organization is, therefore, inconsistent with the essential requirement for operations centers to ensure effective control, integration, and coordination.

Administrative Support Operations

Administrative support operations, area damage control, and rear area security are mutually supporting and interdependent functions. They take place in the same geographical area; they involve the same units; and the first cannot be accomplished without efficient performance of the latter two. For these reasons, rear area security and area damage control actually are an included part of administrative support. Yet, current doctrine provides no staff grouping of these three functions, and the command and staff channels established for their control are multiple and divergent. The G3 is charged with general staff supervision of rear area security. In carrying out this responsibility, the units with which he must deal are concurrently performing their primary administrative support operations under the general staff supervision of G1, G4, or G5 and their area damage control activities under the supervision of G4.

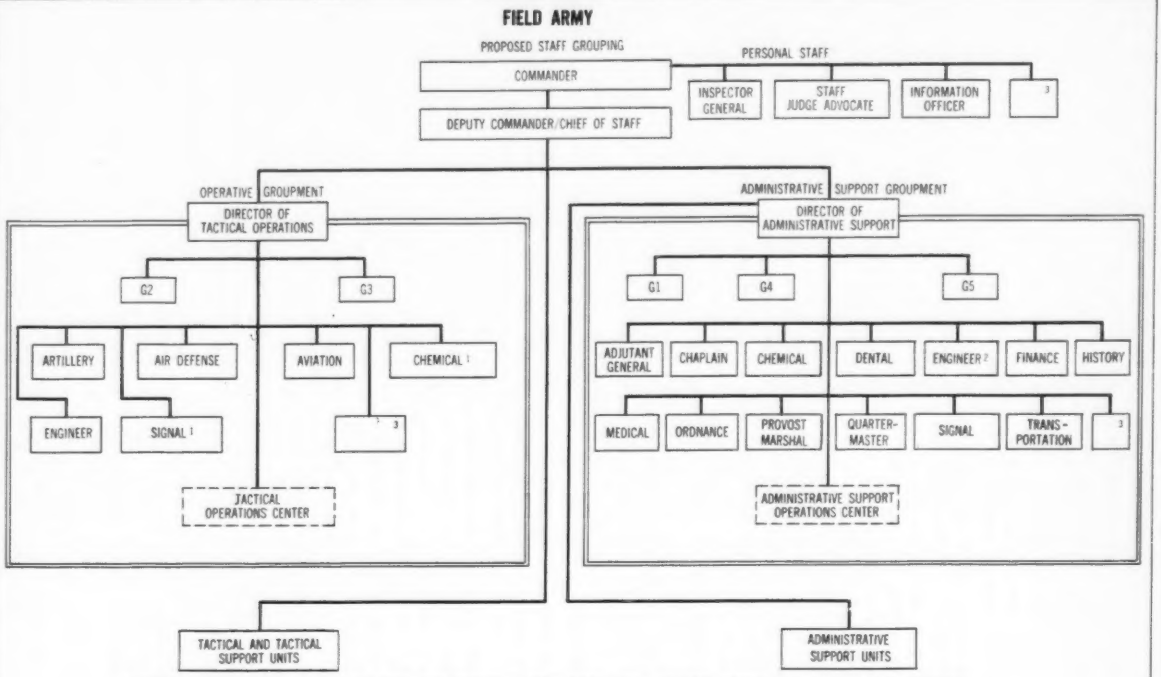
There is *no authority* short of the commander with power of decision as to which of these three competing tasks has current priority. Further, there is no single staff agency charged with responsibility for integrating either their execution or their planning. Within the component activities of both administrative support and tactical operations, similar conflicts of interest result from the same fundamental fault. The over-all result is lack of unity of effort and direction, conflict of interest, and the requirement for time-consuming, detailed, and complex coordination.

Doctrine versus Field Requirements

It is recognized that field commanders frequently have devised local arrangements to offset deficiencies or weaknesses in basic staff organization and doctrine. However, such a requirement detracts from the assigned mission by forcing the commander to devote time and energy to developing a workable solution to a fundamental problem which should have been solved for him. Furthermore, it leads to confusion within and between headquarters and mitigates against the proper accomplishment of the mission of the Army Educational System. Service schools exist for the primary purpose of preparing the graduate to perform his assigned function in the field. If doctrine and instruction are not practical and compatible with efficient field operations, much school instruction is of limited value and resources are wasted. Doctrine and instruction *must* keep pace with field requirements and effective field practices.

Proposed Modifications

Analysis indicates that most of the weaknesses are so interrelated that fundamental corrective measures applied to one assist materially in correcting the others. The adjustments considered necessary to increase the effectiveness of the current staff adequately are shown schematically in Figures 1, 2, and 3.

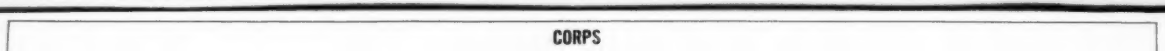


[1] *PRIMARY REPRESENTATION (CHIEF OF SERVICE) IN OPERATIVE GROUPMENT WITH REPRESENTATION IN ADMINISTRATIVE SUPPORT GROUPMENT.*

[2] *PRIMARY REPRESENTATION (CHIEF OF SERVICE) IN ADMINISTRATIVE SUPPORT GROUPMENT WITH REPRESENTATION IN OPERATIVE GROUPMENT.*

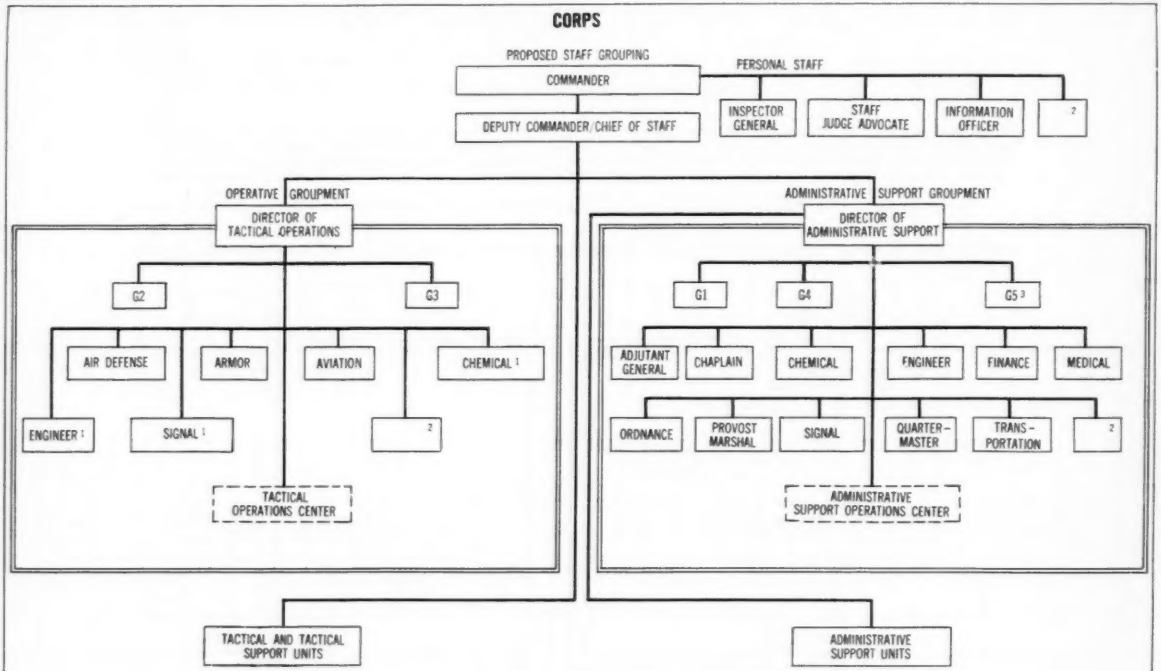
[3] *ADDITIONAL SECTIONS REQUIRED BY SITUATION (FOR EXAMPLE, PSYCHOLOGICAL WARFARE, UNCONVENTIONAL WARFARE, TACTICAL COVER AND DECEPTION).*

FIGURE 1.



[2] ADDITIONAL SECTIONS REQUIRED BY SITUATION (FOR EXAMPLE, PSYCHOLOGICAL WARFARE, UNCONVENTIONAL WARFARE, TACTICAL COVER AND DECEPTION).

FIGURE 1.

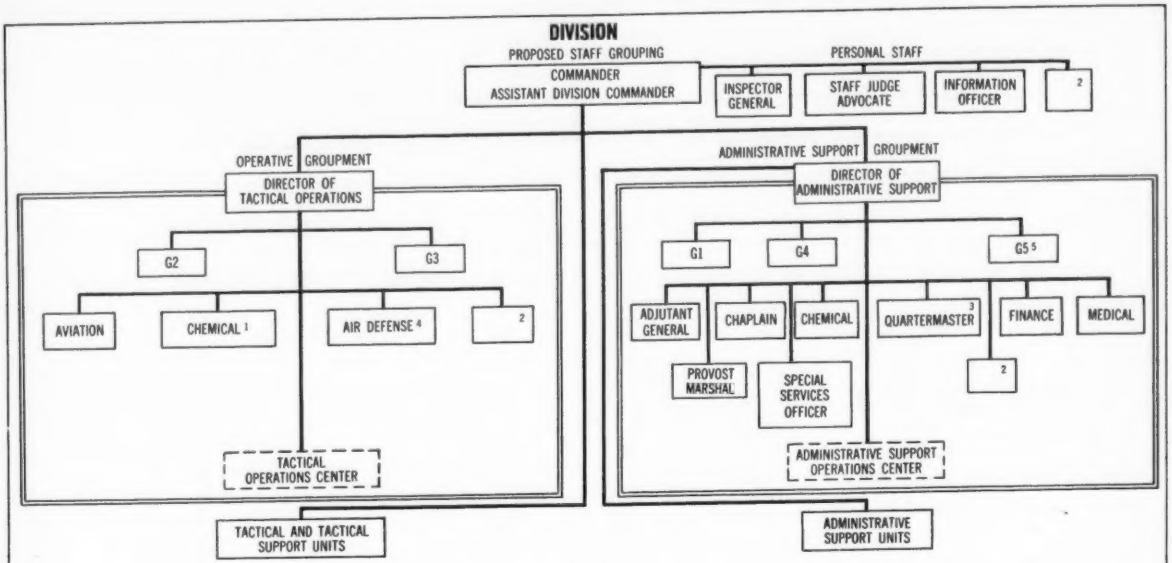


[1] PRIMARY REPRESENTATION (CHIEF OF SERVICE) IN OPERATIVE GROUPMENT WITH REPRESENTATION IN ADMINISTRATIVE SUPPORT GROUPMENT.

[2] ADDITIONAL SECTIONS REQUIRED BY SITUATION (FOR EXAMPLE, PSYCHOLOGICAL WARFARE, UNCONVENTIONAL WARFARE, TACTICAL COVER AND DECEPTION).

[3] AUGMENTATION WHEN REQUIRED.

FIGURE 2.



[1] PRIMARY REPRESENTATION (CHIEF OF SERVICE) IN OPERATIVE GROUPMENT WITH REPRESENTATION IN ADMINISTRATIVE SUPPORT GROUPMENT.

[2] ADDITIONAL SECTIONS REQUIRED BY SITUATION (FOR EXAMPLE, PSYCHOLOGICAL WARFARE, TACTICAL COVER AND DECEPTION).

[3] CERTAIN SPECIALIST COMMANDERS RENDER SPECIALIST ADVICE AS A FUNCTION OF COMMAND (FOR EXAMPLE, ENGINEER, SIGNAL, ORDNANCE BATTALION COMMANDERS). SOME DIFFERENCES EXIST BETWEEN TYPES OF DIVISIONS (FOR EXAMPLE, IN THE ARMORED DIVISION THE QUARTERMASTER BATTALION COMMANDER RENDERS SPECIALIST ADVICE AS A FUNCTION OF COMMAND, AND NO STAFF SECTION NORMALLY IS REQUIRED. WHEN STAFF REPRESENTATION IS REQUIRED, IT IS FURNISHED BY THE SPECIALIST COMMANDER.

[4] AIR DEFENSE STAFF REPRESENTATION IS PROVIDED BY AIR DEFENSE UNITS WHEN ATTACHED.

[5] AUGMENTATION WHEN REQUIRED.

FIGURE 3.

The basic modification is the alignment of related and homogeneous staff activities into working groupments which conform to the two major functions of any field command—the operative function and the sustaining function. This is a logical extension of current trends and will facilitate working relationships *normally required and practiced* in the field. This realignment facilitates achieving many of the desired characteristics of a modern staff such as integration of operations centers, reduction of staff inertia, unity of staff effort, and clearer lines of authority and responsibility.

The operative groupment is headed by a director of tactical operations (DTO) and incorporates the G2, G3, and those special staff officers whose primary field of interest and activities are operative. The administrative support groupment is headed by a director of administrative support (DAS) and incorporates the G1, G4, G5, and those special staff officers whose primary field of interest and activities are administrative support. Staff specialists whose normal day-to-day operations require close personal association with the commander are considered the personal staff.

The composition of these staff groupments is flexible and may be varied to meet special requirements. For example, the G5 may be placed in the operative groupment or on the personal staff in a situation short of war in which political considerations and civil affairs become of major significance.

The Directors

Each director has greater authority than provided the chief of staff or a general staff officer *in current doctrine.* Each commands all staff elements of his groupment, including the associated special staff officers. The functions and duties of the general and special staff officers in his groupment are his responsibilities. Thus the commander has one principal staff subordinate for each of the two major functions of the command. This subordinate is provided the requisite authority for rapid integration of all staff activities within his area of responsibility. Therefore, the directors are not a new and additional level interposed between the commander and his staff merely to coordinate and supervise. Instead, the DTO has full responsibility for the functions of both G2 and G3. In fact he *is* the "G2 and G3" of the current staff and, in the proposed modifications, is provided assistants in the fields of intelligence (G2) and operations (G3). The presence of the two directors, of course, does not preclude the commander from contacting any individual staff officer he desires as in the current staff system.

To ensure recognition of the primacy of tactical operations at field army, corps, and division echelons, the DTO by doctrine is designated "first director" and (depending on the echelon) is assigned varying degrees of responsibility for over-all coordination in matters affecting both groupments. With respect to line units, the DTO issues such supplemental orders and instructions as are necessary to accomplish the stated objectives of the commander and makes decisions which conform to command policy or where authority exists for the action.

The DAS is the principal staff officer for administrative support which includes rear area security and area damage control. Unlike the DTO, the DAS is assigned command type authority over administrative support units as a matter of doctrine. The DAS exercises that type of command control and authority which has been traditional in group type commands; for example, artillery and armor groups wherein the subordinate units are organically self-sufficient. He exercises authoritative control over the administrative support units assigned or attached to the force and is the commander of the rear area. He has

full authority for such matters as assigning missions, designating tasks, establishing priorities, and directing movements and locations. The DAS has both the *authority* and the *obligation* to resolve competing and conflicting requirements without constantly referring administrative support problems to the commander for decision.

The over-all authority described is direct, positive, and sufficient in scope to permit timely accomplishment of the administrative support mission under any situation. It is *not* susceptible to challenge by elements of the administrative support system. The operative staff groupment and the personal staff group of the proposed staff concept still have essentially the same staff functions and responsibilities in regard to administrative support activities as defined in current doctrine. Thus the administrative support units have but one commander and one staff controlling and coordinating their three interrelated *and competing* missions. This single line of authority and responsibility is the only effective solution to the major rear area security and damage control problems inherent to the nuclear battlefield.

Utilizing the DAS and his staff groupment as a functioning element of the force staff is considered a better solution than provision of a support command. It retains the control of administrative support operations within the commander's immediate staff and eliminates duplication and overlapping of responsibilities, and permits a reduction in over-all personnel requirements. It is true that the presence of a support command would provide a single line of command control, with the DAS at force staff level providing a single line of staff authority. However, such an arrangement requires duplication of facilities and personnel and introduces a new echelon of command, thus increasing both staff and operating unit reaction time. These variations are shown graphically in Figure 4.

A fully satisfactory solution to all the problems of administrative support requires that each major echelon of the field army be both administrative and tactical. In fact, the proposed modified staff organization is readily adaptable to a small field army organizational structure which eliminates the corps echelon.

"First Director"

At corps and field army echelons, where there is greater emphasis on longer range planning and operations are more complex, a combined deputy commander/chief of staff is provided. As deputy commander he is second in command of the force. As chief of staff he commands the DTO and the DAS. The DTO, however, is the deputy commander/chief of staff's executive agent for intergroup coordination, particularly as applied to immediate operations.

The position of chief of staff should be eliminated at the division level where the bulk of staff activities are concerned with immediate operations and command is more personal and direct. The DTO as "first director" is responsible for ensuring coordination between the operative and administrative support groupments. This is one of the primary functions of the DTO at the division level. The staff must react rapidly and be highly responsive to the needs of line elements and to the will of the commander. The governing factor is the primary mission (operative).

The director arrangement, coupled with the groupment of related staff activities, expedites staff coordination and provides clear-cut direction over all staff activities within specific areas of responsibility. Staff functions are so aligned and interrelated that both the DTO and the DAS *must* coordinate with each other. When a decision is required in case of conflicts, the DTO has the authority within command policy to make the decision. Stated policy will dictate those matters which

COMPARATIVE LINES OF AUTHORITY AND RESPONSIBILITY FOR ADMINISTRATIVE SUPPORT

ADVANTAGES:

1. SINGLE LINE OF COMMAND AUTHORITY FOR ADMINISTRATIVE SUPPORT TO INCLUDE AREA DAMAGE CONTROL AND REAR AREA SECURITY.

DISADVANTAGES:

1. DUPLICATION OF HEADQUARTERS PERSONNEL AND FACILITIES.
2. MULTIPLE LINES OF STAFF AUTHORITY FOR ADMINISTRATIVE SUPPORT TO INCLUDE REAR AREA SECURITY AND AREA DAMAGE CONTROL.
3. REMOVES OPERATIONAL RESPONSIBILITY FOR OVERALL ADMINISTRATIVE SUPPORT FROM THE FORCE STAFF LEVEL.
4. RESULTS IN DENUDING FORCE STAFF OF NECESSARY SPECIALIST ADVICE.

ADVANTAGES:

1. SINGLE LINE OF **BOTH** COMMAND AND STAFF AUTHORITY FOR REAR AREA SECURITY AND AREA DAMAGE CONTROL.

DISADVANTAGES:

1. DUPLICATION OF HEADQUARTERS PERSONNEL AND FACILITIES.
2. REMOVES OPERATIONAL RESPONSIBILITY FOR OVERALL ADMINISTRATIVE SUPPORT FROM THE FORCE STAFF LEVEL.
3. RESULTS IN DENUDING FORCE STAFF OF NECESSARY SPECIALIST ADVICE.

ADVANTAGES:

1. SINGLE LINE OF **BOTH** COMMAND AND STAFF AUTHORITY FOR ADMINISTRATIVE SUPPORT AND REAR AREA SECURITY AND AREA DAMAGE CONTROL.
2. AVOIDS DUPLICATION OF HEADQUARTERS PERSONNEL AND FACILITIES.
3. RETAINS OPERATIONAL RESPONSIBILITY FOR ADMINISTRATIVE SUPPORT AT FORCE STAFF LEVEL.
4. RETAINS NEEDED SPECIAL STAFF ADVICE AT FORCE STAFF LEVEL.

DISADVANTAGES:

1. SOME GROUPMENT OF ADMINISTRATIVE SUPPORT UNITS WILL BE REQUIRED AT FIELD ARMY.

FIGURE 4.

will be referred to the commander for information or decision. Considering the level involved, the nature of division operations, and the policies of the commander which normally would be established, only matters of primary command importance will be required to be referred to the commander for decision.

Staff Generalists and Specialists

The traditional areas of interest and the "G" designations of the general staff officers (generalists) have been retained. As "assistant directors" of the groupment to which assigned, they function within the more specific authority of their director and direct, coordinate, and supervise the special staff officers and activities within their parent groupment. They also coordinate across groupment lines. They normally will be given the authority to act in the name of the director within certain prescribed areas.

Like those of the "G's," the traditional areas of interest of special staff officers (staff specialists) are retained. Lines of authority and responsibility are more clearly delineated. The special staff officers do not constitute a separate group or staff but are included in the staff as "staff specialists." The dual status of commander and special staff officer provided in current doctrine is eliminated.

At those echelons where current organization prescribes that the commanders of special arms or service units are also the special staff officer for their particular activity, the "staff officer" designation is dropped. These individuals render specialist advice as a *normal function of command.* At those echelons where staff officers from a specialized arm or from the technical and administrative services are required, such officers are provided as staff specialists and, with the generalist or "G" staff officers, placed under the command of their respective director. Thus they doctrinally provide their advice at the using level (staff level) and are commanded by the individual with over-all responsibility for the function on which their activity primarily bears.

Staff specialists, other than commanders, are classified as belonging *primarily* to one of the groupments, or the personal staff, although they provide advice across groupment lines as necessary. However, as in the case of the "G's," the commander has such direct access to the staff specialist officers as he desires. Chemical, engineer, and signal have both tactical support and logistical responsibilities and are represented in both the operative and administrative support groupments.

Operations Center Concept

Operations centers are provided for both the operative and the administrative support groupments. These operations centers are flexible in organization and in size. The number of elements therein will vary with the command echelons, the mission, and the component force structure. At division level, for example, a larger proportion of the staff will be incorporated into the tactical operations center and administrative support operations center (ADSOC) than at field army level. Those staff elements concerned with future planning normally will not be incorporated in the TOC or ADSOC. It is considered highly important that the two operations centers be fully complementary. Administrative support must keep pace with the accelerated rate of tactical operations. Cross representation on a minimum essential basis is provided as required. Neither center is a separate agency or echelon of command but each is used to facilitate the control, coordination, and integration of current operations within its respective areas of interest. The directors, although responsible for the operations centers, are assisted by the "G" operations sections therein and thus are free to accomplish staff visits and duties throughout the command.

Neither the TOC nor the ADSOC is de-

pendent upon specialized equipment or the development of advanced electronic means. Both are designed to utilize items currently available. However, advanced specialized electronic equipment, such as displays and computers, can be integrated readily once they become available. Both operations centers can be established within currently authorized personnel ceilings and will require no additional external communication means.

Alternate control means to include staff facilities, coupled with adequate dispersion and effective communications, are essential. The proposed modified staff concept lends itself to the provision of alternate facilities. The staff groupments can be fragmented or echeloned in similar groupments to operate in dispersed locations. Since each operations center has a cross representation from the other and is supported by effective communication means, it has the capability of taking over the critical functions of the other for short periods during an emergency.

TOC

The general organization of a field army TOC showing operating units, centers, or control elements with which the TOC is concerned directly is outlined in Figure 5. The TOC, as an integrated staff facility under the direction of the DTO, performs the following general functions:

- Provides the field army, corps, or division commander a central facility for the control, coordination, and integration of current tactical operations including such activities as intelligence, fire support, Army aviation, signal, air defense, chemical, engineer, and such others as required.
- Provides for the control, coordination, and integration of current tactical and organic tactical support operations.
- Provides a central agency for the coordination and integration of tactical support provided by other army forces and by the other services with current tactical operations.
- Facilitates the control and regulation of the airspace over the commander's area of responsibility.
- Provides essential display of current data on the air and ground situations so that prompt reaction to sudden changes in the combat situation can be effected.

ADSOC

ADSOC composition parallels that of the TOC. It has a G1/G4 operations section, expanded to include G5 when necessary, and a variable number of *functional* elements composed of representatives from the technical and administrative services. These elements depict a groupment of activities normally provided for within current staffs. Additionally, this internal organization is equally applicable to the present administrative support system or a functionalized administrative support system. Figure 6 shows a typical ADSOC at field army. The ADSOC is an integrated staff facility under the direction of the DAS and performs the following general functions:

- Provides the field army, corps, and division commander a central facility for the control, coordination, and integration of current administrative support operations including area damage control and rear area security activities.
- Provides a central agency for the continuous and current assessment of the over-all administrative support situations, capabilities, and limitations of the command.
- Provides for the coordination of current administrative support operations with higher, adjacent, and supporting commands and other services.
- Provides the focal point for the receipt of information and issuance of direction for the coordinated employment of common facilities and services required by the personnel, logistical, and civil affairs support organizations.
- Allocates administrative transportation means to meet immediate evacuation,

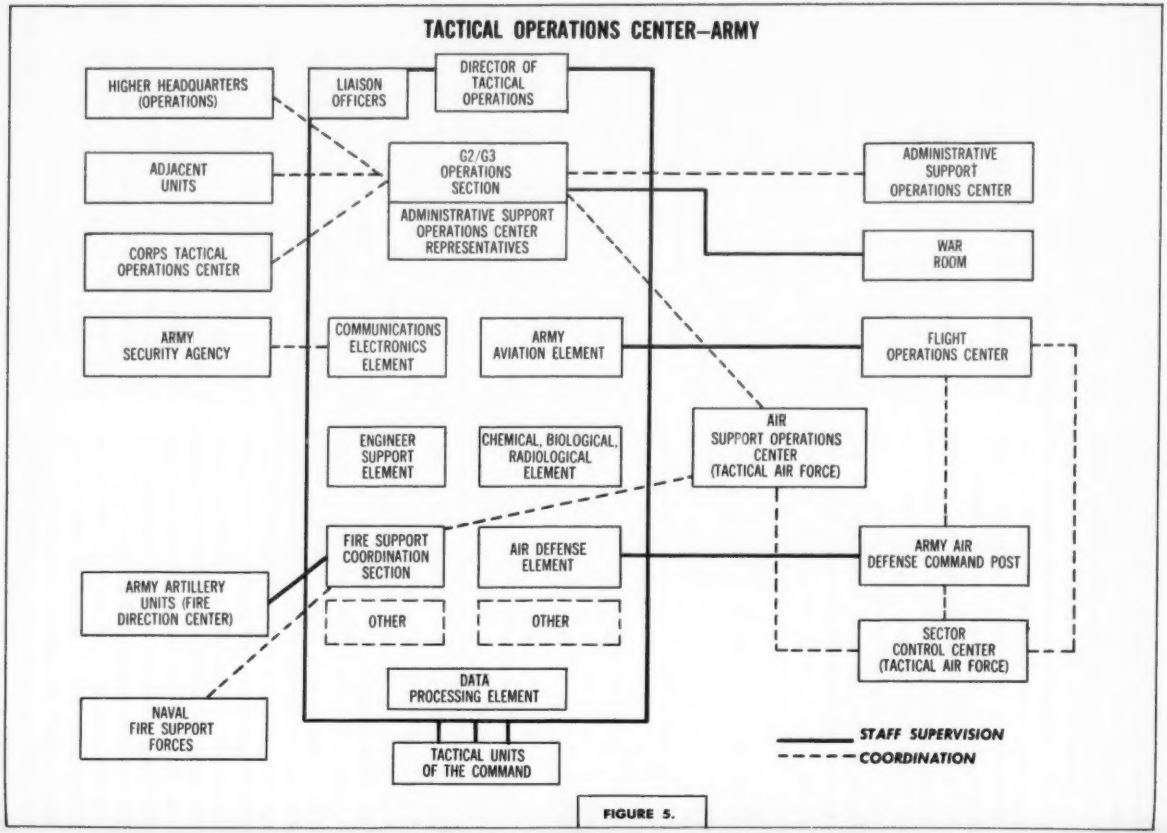

TACTICAL OPERATIONS CENTER—ARMY
HIGHER HEADQUARTERS (OPERATIONS)
LIAISON OFFICERS
DIRECTOR OF TACTICAL OPERATIONS
ADJACENT UNITS
G2/G3 OPERATIONS SECTION
ADMINISTRATIVE SUPPORT OPERATIONS CENTER REPRESENTATIVES
ADMINISTRATIVE SUPPORT OPERATIONS CENTER
CORPS TACTICAL OPERATIONS CENTER
WAR ROOM
ARMY SECURITY AGENCY
COMMUNICATIONS ELECTRONICS ELEMENT
ARMY AVIATION ELEMENT
FLIGHT OPERATIONS CENTER
ENGINEER SUPPORT ELEMENT
CHEMICAL, BIOLOGICAL, RADIOLOGICAL ELEMENT
AIR SUPPORT OPERATIONS CENTER (TACTICAL AIR FORCE)
FIRE SUPPORT COORDINATION SECTION
AIR DEFENSE ELEMENT
ARMY AIR DEFENSE COMMAND POST
ARMY ARTILLERY UNITS (FIRE DIRECTION CENTER)
OTHER
OTHER
SECTOR CONTROL CENTER (TACTICAL AIR FORCE)
DATA PROCESSING ELEMENT
NAVAL FIRE SUPPORT FORCES
TACTICAL UNITS OF THE COMMAND
STAFF SUPERVISION
COORDINATION

FIGURE 5.

TYPICAL ORGANIZATION OF
ADMINISTRATIVE SUPPORT OPERATIONS CENTER—FIELD ARMY

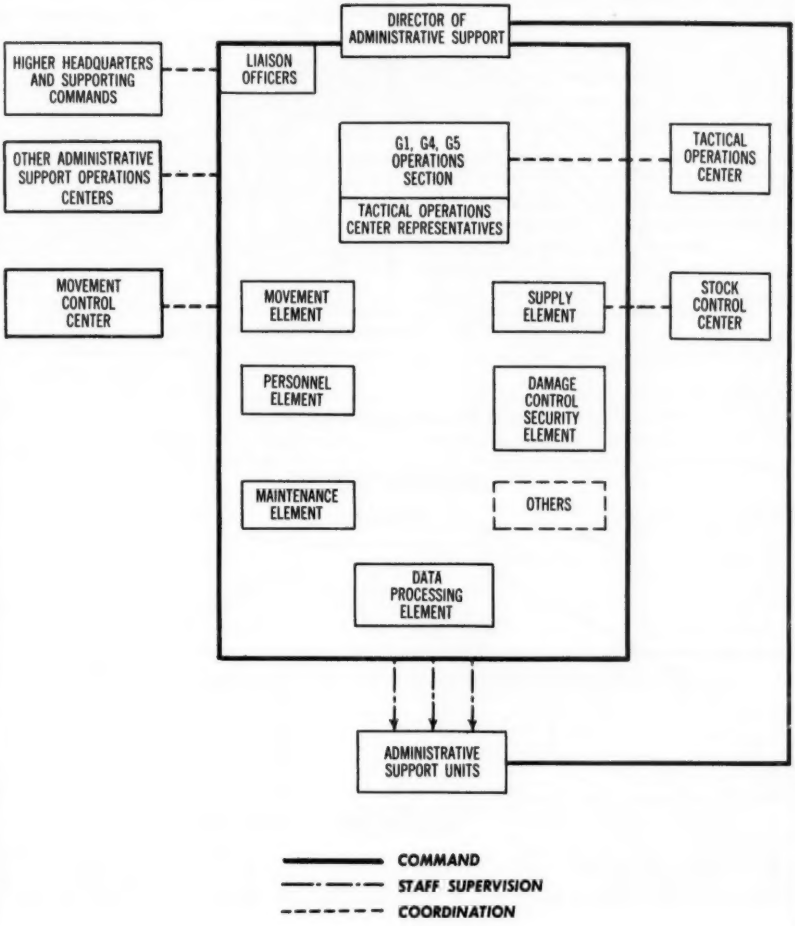


FIGURE 6.

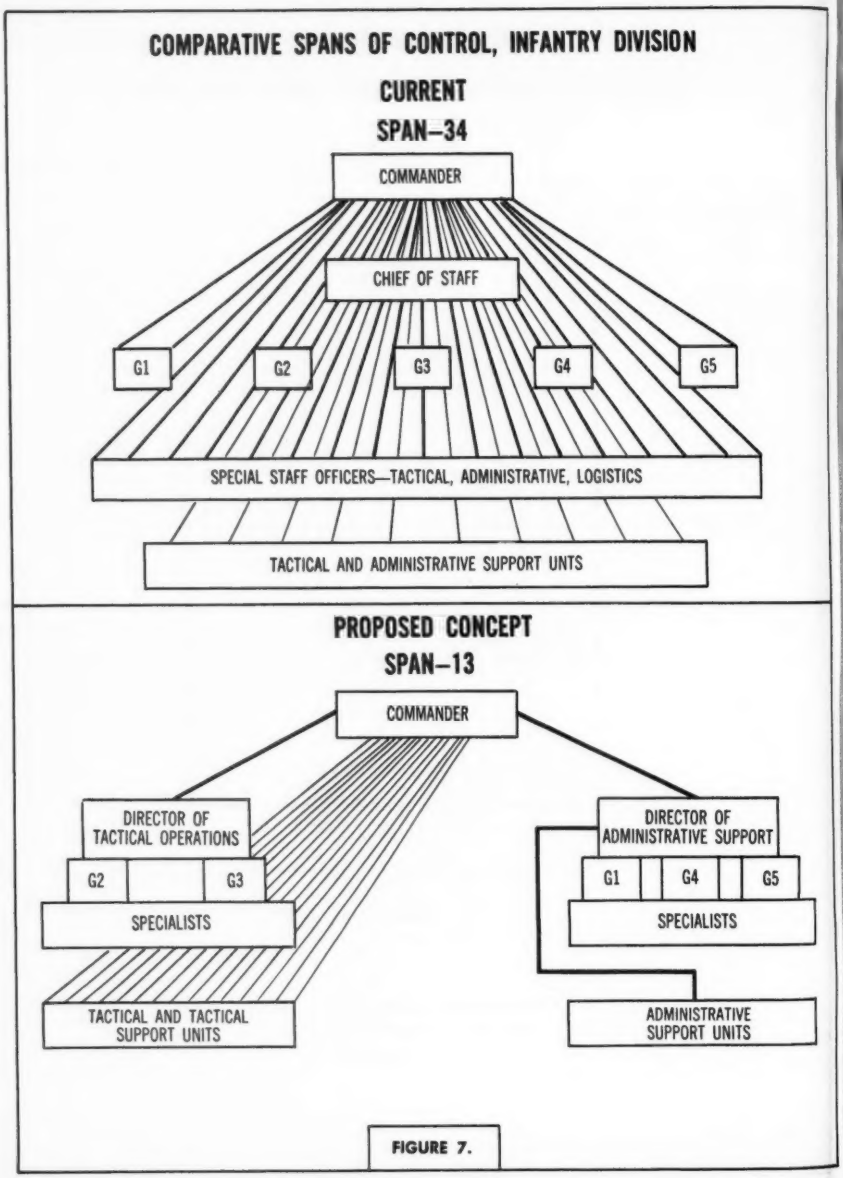

COMPARATIVE SPANS OF CONTROL, INFANTRY DIVISION
CURRENT
SPAN—34
COMMANDER
CHIEF OF STAFF
G1
G2
G3
G4
G5
SPECIAL STAFF OFFICERS—TACTICAL, ADMINISTRATIVE, LOGISTICS
TACTICAL AND ADMINISTRATIVE SUPPORT UNTS
PROPOSED CONCEPT
SPAN—13
COMMANDER
DIRECTOR OF TACTICAL OPERATIONS
G2
G3
SPECIALISTS
TACTICAL AND TACTICAL SUPPORT UNITS
DIRECTOR OF ADMINISTRATIVE SUPPORT
G1
G4
G5
SPECIALISTS
ADMINISTRATIVE SUPPORT UNITS

FIGURE 7.

supply, troop movement, and other administrative requirements in accordance with current movement priorities.

- Continuously supervises the implementation of the over-all movements plan.
- Provides for the direction of rear area security and area damage control operations and coordination with current administrative support operations.
- Provides facilities for the receipt, transmission, storage, and display of information, data, and instructions concerning the administrative support activities of the command.
- Facilitates the rapid coordination of administrative support operations with the tactical operations of the command.

The concepts expressed in this discussion can be implemented readily. The proposed modifications are a logical extension of current trends. The groundwork previously completed by the Army in connection with the TSC and the TAOC will permit this implementation with a minimum of reorganization and retraining. Further, necessary training literature could be prepared readily.

Summary

The modifications discussed herein—homogeneous grouping of functions, delegation of authority, and application of the principle of unity of command and direction—have improved significantly the span of control of the commander. For example, the span of control in the infantry division is reduced from approximately 34 to 13 as shown in Figure 7.

The proposed adjustments to the current staff system offer the following specific advantages:

- Provide a balanced staff with appropriate speed of reaction in both the fields of tactical operations and administrative support.
- Permit the commander to concentrate on the essential aspects of command by proper delegation of authority to the staff.
- Clarify lines of authority.
- Retain the control of administrative support staff function on the commander's immediate staff.
- Provide the requisite specialist advice to the commander and staff.
- Provide a staff structure compatible with the integration of operations centers, necessary field echelonment of the headquarters, and the provision of alternate command posts.

The modifications proposed, if adopted, will effectively adapt the current US field staff at division, corps, and field army echelons to the requirements of modern war. They are applicable *today* and to the foreseeable future and can be effected *now* without the development of additional or specialized equipment.

MOVING?

If you are moving, please notify the MILITARY REVIEW, Fort Leavenworth, Kansas, of your change of address. Be sure to include your name, *old* address, and *new* address.

REFRESHER SUBCOURSE
FOR USA CGSC GRADUATES

If you are a US or Allied graduate of the USA CGSC (or if you have received equivalent constructive credit) you are eligible to enroll in the new USA CGSC Graduate Refresher Subcourse which is available for issue in March. Changes in weapons, organizations, and doctrine occur so frequently that even the most recent graduate has need to study constantly to stay up to date. Therefore, the College constructed this extension subcourse to serve as a vehicle to bring graduates up to date.

The refresher subcourse follows a different practice from other College subcourses. Normally, texts are mailed to the student only when short extracts cannot be sent. In this case, however, the College recognizes that most of the texts are new and that you may wish to do more reading than that required to solve the exercises. Consequently, many of the latest manuals and College Special Texts are furnished the student.

The subcourse consists of eight lessons (and if you are a US Reserve component officer it will have approximately 25 credit hours). The last lesson is a review, but there is no examination. Subjects include recent available unclassified instructional material on Unconventional Warfare, use of nuclear weapons, automatic data processing systems, new organizations, new staff procedures, and operational and administrative support doctrine. Following Leavenworth custom, the subcourse also contains concepts and ideas designed to stimulate your intellectual curiosity and to interest you in further research.

The College is presenting this subcourse as a help and a challenge. You are the one most interested in your own military education. You would not be a USA CGSC graduate did you not possess exceptional energy, conscientiousness, and military potential. You have invested many long hours of study in the basic Leavenworth subjects. The College has constructed this subcourse to help you protect that investment.

To enroll, apply to the Director, Department of Nonresident Instruction, USA CGSC, Fort Leavenworth, Kansas. Give your name, address, rank, serial number, branch, and date of graduation or credit for USA CGSC. (US Army Reserve officers include your office of record.) Allied graduates should apply through appropriate MAAG's, Missions, or Attachés.

MILITARY NOTES AROUND THE WORLD

UNITED STATES

115-mm Artillery Weapon

The Army Ordnance Corps has announced a new 115-mm artillery weapon which was developed for use by the United States Marine Corps. Designated as the *XM70*, the new weapon is a close-support

US Army Photo

***XM70* boosted rocket artillery weapon**

artillery piece which uses the boosted rocket principle of propulsion. The round is given its initial start by a small explosive charge, after which a rocket motor takes over and carries the projectile to its target.—News release.

Helicopter Destroyer

The Navy's first antisubmarine helicopter destroyer, the *USS Hazelwood (DD-531)*, recently has undergone extensive training exercises off the Atlantic coast.

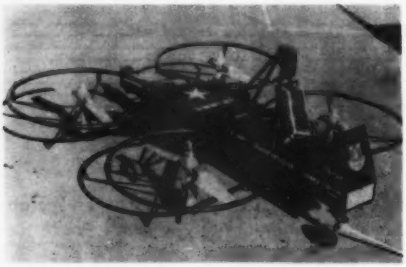
US Navy Photo

***Hazelwood* helicopter destroyer**

The flight deck of the *Hazelwood* is designed to employ the *DSN-1* drone helicopter. Helicopter destroyers will employ drones armed with homing torpedoes to attain a submarine kill potential at a much greater range than that of conventional destroyers.—News release.

'VZ-7 AP' Test Bed

An X-shape flying platform has been developed for the United States Army Transportation Research and Engineering Command. The new air vehicle has four small helicopter type rotors, one at the end of each leg, which are powered by a



US Army Photo

***VZ-7 AP* flying platform**

single 425-horsepower gas turbine engine. It was designed to meet the Army's requirements for a low-flying aerial vehicle that could follow ground contours easily, and will compete with two other "flying jeep" test beds for further development and production.—News item.

'Saturn' Under New Management

The *Saturn* space project was turned over by the Department of Defense to the National Aeronautics and Space Administration recently. The *Saturn* program calls for the development of a giant booster capable of lifting multiton loads into orbit around the earth or on outward space journeys.

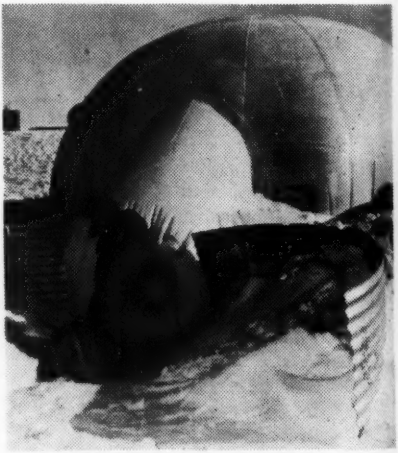
Development of the 1,500,000-pound thrust first stage of the *Saturn* system for the Advanced Research Projects Agency of the Department of Defense was accomplished by the Army Ballistic Missile Agency at Huntsville, Alabama (MR, Oct 1959, p 78).—News item.

'Shillelagh' Contract Awarded

The Army has awarded an eight million-dollar contract to a California company for further work on the *Shillelagh* missile system. The *Shillelagh*, named after the Irish cudgel, is a lightweight surface-to-surface guided missile for close support of surface forces against armor or other suitable targets. Few details of the weapon have been made available but the Army has indicated that the missile will become operational sometime in the mid-1960's. Unofficial sources have indicated that the *Shillelagh* may be used as a tank-launched weapon.—News item.

Portable Igloo

Members of a United States Army Polar Research and Development team engaged in field research operations in the

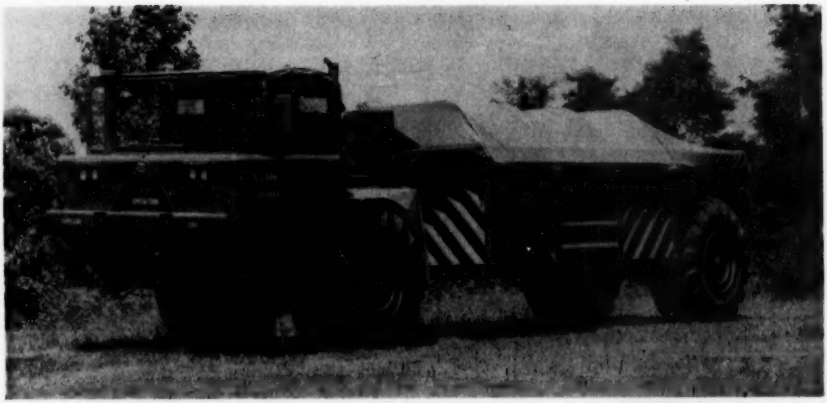


US Army Photo

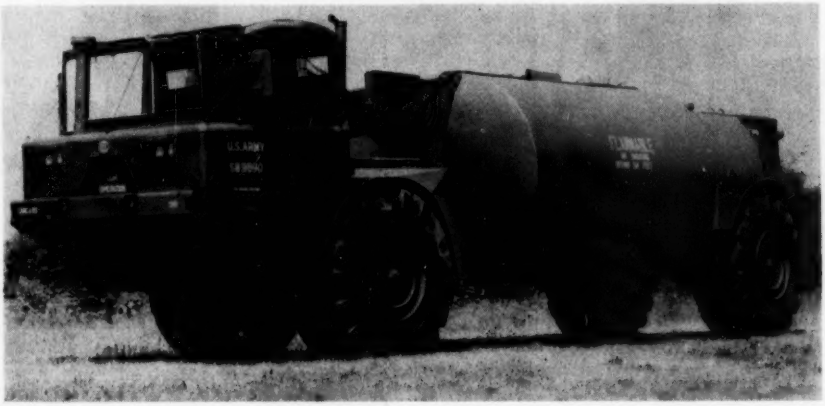
Rubber igloo

Arctic are using a rubberized canvas igloo for shelter. The igloo is erected by inflation, and is provided with a rubber and canvas entrance tunnel typical of Arctic igloos.—News item.

'Goer' Concept Tested



Goer cargo truck

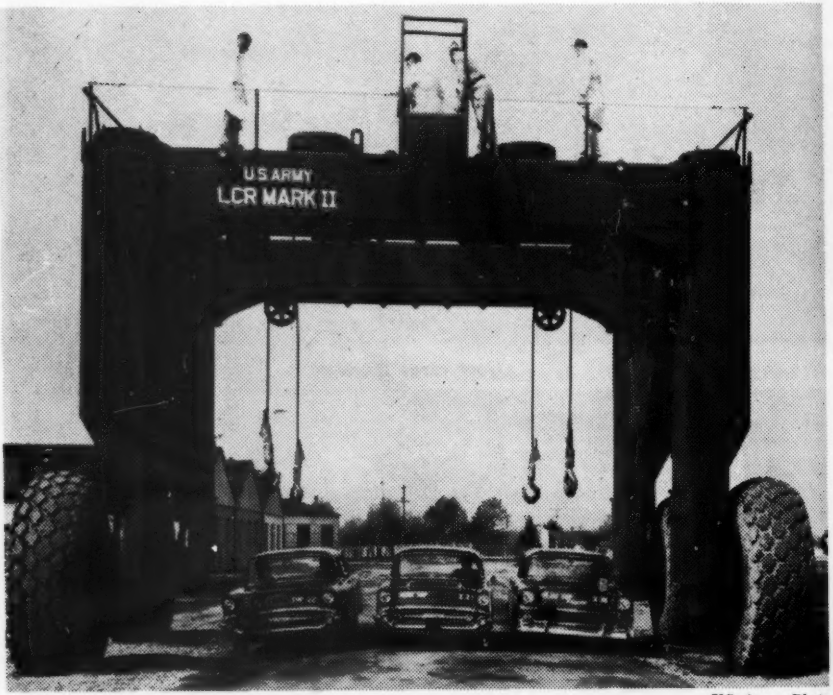


Goer 5,000-gallon tanker

Two test bed vehicles incorporating the *Goer* principle (MR, Jun 1957, p 62) recently have undergone extensive testing at the United States Army Armor Center. Based on principles that have been tested and proved in commercial earth-moving equipment, the two test bed vehicles have large diameter, low-pressure tires, exoskeletal construction which requires no suspension system, and high payload to weight ratio characteristics. Tested were a 4 x 4 fifteen-ton cargo vehicle, designated the *XM437*, and a 5,000-gallon tank truck called the *XM438*.

Tests have demonstrated high-performance characteristics on dry land, in mud, and through water. The *XM437*, loaded with 15 tons of rock was driven into 35 feet of water. It floated and made a 360-degree circle propelled by its churning tires at from five to seven miles per hour. —News release.

Landing Craft Retriever



US Army Photo

***Mark II* landing craft retriever**

The Army Transportation Corps is testing a new landing craft retriever capable of straddling, lifting, and carrying ashore a disabled landing craft weighing up to 70 tons. Designated the *Mark II*, the new retriever will be used principally for repair work.—News item.

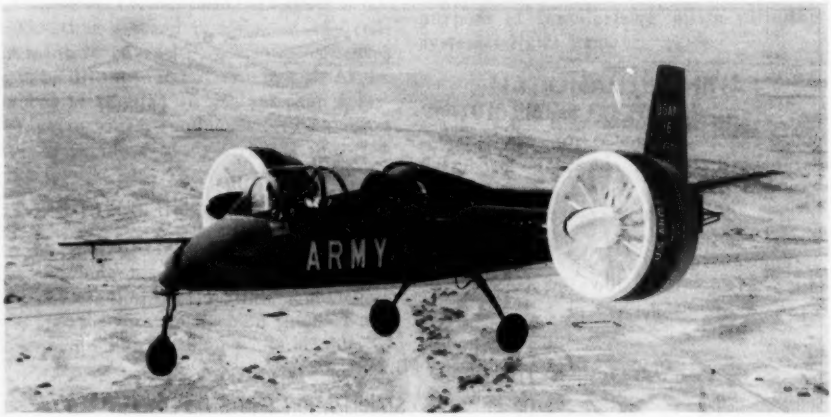
Small Staff Cars

The United States Army is considering the new "compact" cars now being produced by leading US automobile manufacturers for use as staff transportation. —News item.

Automatic Mapping System

A system which will provide accurate map information from aerial photographs in less time than is required by manual photogrammetric methods is being developed by the United States Army Engineer Research and Development Laboratories. The system, expected to be in operation during the current year, employs electronic scanning of overlapping photography and can produce a contoured photograph on which the position of the image is displayed to its true scale position.—News item.

Doak 'Model 16' Accepted By Army



New *VZ-4DA*

The Doak *Model 16* vertical takeoff and landing aircraft (VTOL), designated by the Army as the *VZ-4DA* (MR, Sep 1959, p 77) has been accepted by the US Army Transportation Research and Engineering Command after successful demonstrations of its performance capabilities at Oxnard Air Force Base. In addition to its VTOL characteristics, the two-place *VZ-4DA* can be used for short runway operations thus increasing its fuel load and extending its range. The manufacturer has undertaken the development of a transport aircraft employing the ducted fan propulsion system used in this aircraft.—News release.

High-Altitude Chopper

Recent tests of a Bell *47G-3* helicopter demonstrated the ability of the aircraft to operate with a load well above 17,000 feet altitude. Estimated maximum ceiling of the new helicopter is 30,000 feet. The model will be produced commercially starting approximately 1 March this year. Previous models of the *47G* series include the *H-13 (Sioux)* military version (MR, Dec 1959, p 68).—News item.

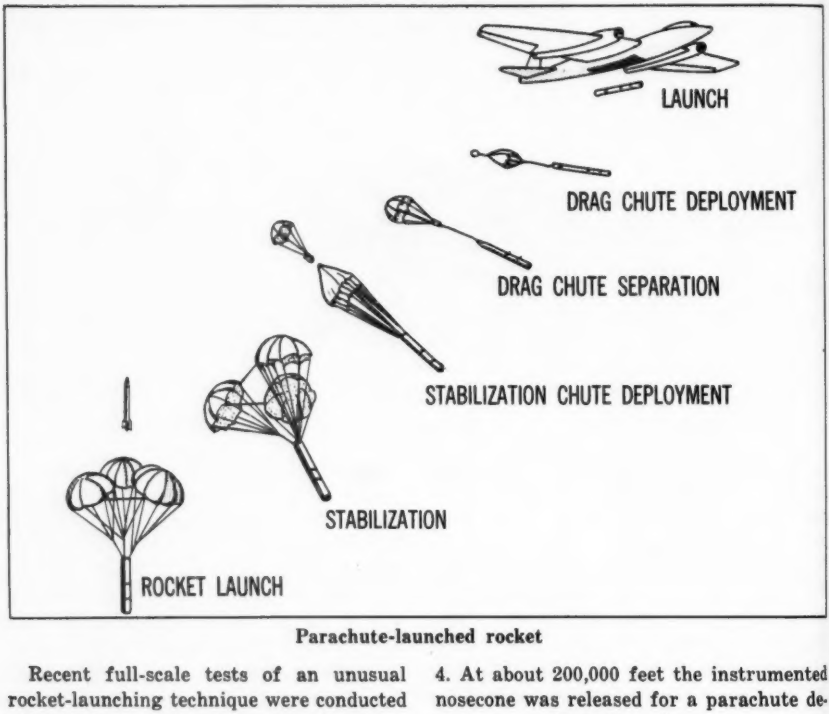
Purification Of Radioactive Water

The United States Army Engineer Research and Development Laboratories at Fort Belvoir, Virginia, have developed an air-droppable water purification unit that will remove radioactive contamination as well as ordinary pollution from water. The new kit is sectionalized to facilitate handling and transport, and is designed for use by troops in areas not accessible to truck-mounted purification units.—News release.

Arctic Research Laboratory

Plans for the construction of the Cold Regions Research and Engineering Laboratory near Dartmouth College, Hanover, New Hampshire, have been announced by the Department of the Army. Construction, which will cost about 3¼ million dollars, is expected to begin this spring. The new facility will combine activities now conducted at the Snow, Ice, and Permafrost Research Establishment at Wilmette, Illinois, and at the Arctic Construction and Frost Effects Laboratory at Waltham, Massachusetts.—News release.

Rocket Launched From Parachute



Parachute-launched rocket

Recent full-scale tests of an unusual rocket-launching technique were conducted at Holloman Air Force Base in New Mexico. The tests were designed to boost a weather instrument package to altitudes of 200,000 feet, and featured the launch of a rocket from a tube suspended between three parachutes.

The parachute device was ejected from an aircraft at approximately 20,000 feet. A small drag chute slowed the assembly, and three larger stabilization chutes spread out in a cloverleaf pattern leaving an open space directly above the launcher tube. The rocket, which was less than eight feet long, was then fired straight up out of the launcher tube and within six seconds after firing was traveling at Mach 4. At about 200,000 feet the instrumented nosecone was released for a parachute descent to earth.—News item.

New Automatic Pilot

Solid-state electronics virtually will eliminate such time-honored devices as rotating shafts, gear trains, cams, and relays from an aircraft automatic pilot now being developed. It is now possible to eliminate all electronically actuated mechanical devices between the input sensors and the output servos of aircraft flight control systems. The effect of these developments is expected to reduce the size, weight, power consumption, and cost of the equipment with an appreciable increase in reliability.—Commercial release.

GREAT BRITAIN

Traditional Punishment Dropped

The time-honored punishment of "confinement to barracks" for minor offenses is to be discontinued by the British Army. Said to be more of an irritant than a corrective measure, confinement to barracks will be replaced by "restriction of privileges."

The new restriction will permit the soldier to be absent from barracks until 2200 unless required for fatigue detail, and will not preclude his use of the canteen. A man undergoing "restriction of privileges" will lose the right to sleep off the base and to wear civilian clothing while off duty.—News item.

Jet Engine 'Blows Out' Fires

A jet engine that is capable of generating 50,000 cubic feet of inert gas per minute is being tested in Great Britain as a fire-fighting device. Pumped into a burning enclosure, the gas would displace the combustible air and thus "starve" the fire. Such an engine with enough fuel to operate for 30 minutes could be mounted on a five-ton truck and would generate enough gas to displace 1.5 million cubic feet of air. It is anticipated that the device will be especially valuable in fighting underground fires.—News item.

Visual Landing Aid

A new visual landing aid for aircraft pilots is now in use at a London airport. Called the Visual Glide Path Indicator System, it is an arrangement of lights bordering each side of the runway which indicate to the pilot that he is making a correct descent when approaching to land. On a correct approach, the pilot sees two beams of red light above his aircraft and two beams of white light beneath it. If the approach is too low, both sets of lights show red, and if the approach is too high, the lights show white.

British authorities have tested the system for about two years, and now propose to adopt it for general use. The initial installation at the London airport is for the purpose of familiarizing pilots with the system.—News item.

NATIONALIST CHINA

'RF-101' Planes For Nationalists

Nationalist forces on Taiwan are being furnished supersonic *RF-101 Voodoo* jet reconnaissance planes according to press reports emanating from Taiwan.

The *RF-101* is a long-range photoreconnaissance version of the *F-101* fighter bomber with fully automatic camera equipment installed in the lengthened forward fuselage.—News item.

CZECHOSLOVAKIA

Pipeline Construction

Work has begun on the Czechoslovakian portion of an international oil pipeline that eventually is to extend from Kuibyshev in western Siberia through Poland, Czechoslovakia, Hungary, and East Germany. Within Czechoslovakia the line will run from the Soviet frontier to Bratislava on the Danube where it will connect with a pipeline to Hungary.—News item.

DENMARK

New Jeeps Ordered

The Danish Army has placed an order for 500 *M38A1* jeeps with a United States manufacturer. This is one of the largest single orders for wheeled vehicles ever placed by the Danish Army. The vehicles will be the standard type now used by United States and other NATO forces in Europe. Each jeep will be equipped with a 24-volt electrical system.—News release.

BRAZIL

More Tankers For National Fleet

The National Tanker Fleet of Brazil has ordered six additional 10,000-ton tankers for delivery in June 1960. The new tankers will be constructed by a Danish shipyard and are to have a 12-knot cruising speed.—News item.

FRANCE

Increased Arms Budget

The defense budget proposed for the coming year includes an increase of 33 million dollars over actual expenditures for defense purposes in 1959. In general, the budget provides for the maintenance of a 500,000-man force in Algeria, and a reduction in the manufacture of conventional weapons. It more than doubles the funds to be used for the development of nuclear weapons and nuclear delivery means. The nuclear program has been allocated 85 million dollars, most of it earmarked for the production of weapons.

Also included are funds to start production of 50 long-range bombers capable of better than Mach 2 speeds and 100

Mach 2 *Mirage IV*

supersonic *Mirage III* fighters (MR, Aug 1958, p 73). The long-range bomber is reported to be a version of the *Mirage IV* (MR, Aug 1959, p 72). Twenty million dollars have been allotted for the development of a ballistic missile with a 1,250-mile range.—News item.

Franco-German Research Laboratory

A French military research laboratory established in 1945, and at that time employing a number of German scientists and technicians, has, by virtue of an agreement signed in 1958, become a joint effort of the two nations. Designated the Saint-Louis Research Laboratory, it is located near the three-nation junction point of France, Germany, and Switzerland and in close proximity to the universities of Strasbourg, Freiburg, Basel, and a technical college at Saint-Louis itself. The institute conducts pure research as well as technical development and experimentation on specific military equipment. Its main fields are ballistics, aerodynamics, blast, air wave and wind tunnel effects, projectile design, physics, chemistry, and instruments of measurement.—News item.

New Army Aircraft

The Light Aviation Division of the French Army Air Force will receive 250 new aircraft during the next few months. One hundred and fifty *Nord 3400* artillery observation aircraft are on order and currently are being delivered at the rate of 10 per month. The *3400* is a two-place craft with tandem seats. The observer's seat swivels through 360 degrees and the observer's side windows are bulged to permit a completely vertical view of the ground.

The aircraft is powered by a 260 horsepower engine, can take off in less than 100 meters of runway, has a cruising speed of 200 kilometers per hour, and a range of 1,000 kilometers. A hundred *Nord 3202* light trainer planes are also on order and are being delivered at the rate of two to four per month.—News item.

NORWAY

Air Defense Switch

The Norwegian Government has asked Parliament to approve a bill calling for the incorporation of the air defense artillery into the air force. The move is motivated by a desire to save personnel spaces. Concurrent with this proposal, the government recommended acceptance of an offer by the United States to furnish *Hawk* missiles to supplement the *Nike* missiles previously made available to Norway. Both *Hawk* and *Nike* are standard United States Army air defense missiles. —News item.

AUSTRALIA

Defense Reorganization

Australia's Minister for Defense has announced a defense reorganization plan aimed at increasing the country's readiness for limited war. The plan emphasizes the value of collective defense agreements such as the Southeast Asia Treaty Organization (SEATO) and the Australian, New Zealand, and United States Mutual Assistance Pact (ANZUS) treaties to Australia's safety, and is expected to provide armed forces that can act promptly in conjunction with allied forces in the event of trouble. Major features of the program include the expenditure of 67.5 million dollars on new army equipment, including helicopters, abandonment of the fleet air arm after 1963, the purchase of 12 new *Neptune* antisubmarine reconnaissance aircraft, and the construction of four new antisubmarine frigates. The air force will be provided with modern replacements for the Avon *Sabre* jet fighters, will be equipped with *Bloodhound* antiaircraft guided missiles (MR, Sep 1959, p 80), and will have an increased helicopter force. —News item.

'Black Knight' Firings

The fifth successful firing of the United Kingdom's *Black Knight* missile at the Woomera Rocket Range in Australia was announced recently. The *Black Knight* (MR, Nov 1958, p 78) is a ballistic rocket test vehicle which may be used as the basis of a vehicle for launching an earth satellite.

The most recent test was designed to investigate further the effect of reentry of the missile head into the earth's atmosphere. The nosecone landed very close to the planned point of impact and provided much vital data for further study. The missile was reported to have reached an altitude of more than 450 miles and to have traveled at speeds up to Mach 10. —News item.

JAPAN

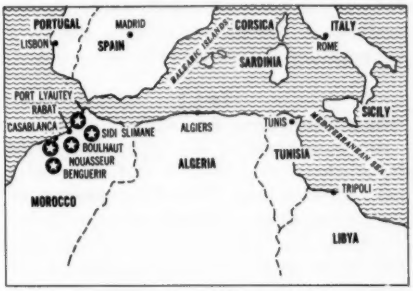
New Security Treaty

A new security treaty between the United States and Japan is reported near the signature stage. The terms of the treaty are said to include authority for the United States to continue to use bases in Japan for combat operations elsewhere in the Far East but only after "prior consultations" with Japanese authorities. Another provision requires consultations prior to "major changes" in equipment of United States forces stationed in Japan. This has been interpreted as an allusion to the often expressed wish of the Japanese that nuclear weapons be kept out of their country.—News item.

MOROCCO

US Bases To Be Phased Out

The United States has announced her intentions to give up air and naval base facilities in Morocco during the next few years. Involved are three major airbases at Nouasseur, Sidi Slimane, and Benguerir, an auxiliary base at Boulhaut, and



Bases in North Africa

a naval base at Port Lyautey. The three major airbases are used by bombers of the Strategic Air Command. About 15,000 United States military personnel and dependents now stationed in Morocco will be withdrawn gradually as facilities and functions are phased out.—News item.

WEST GERMANY

Fiscal '60 Budget

West Germany's budget for Fiscal Year 1960, which begins in April, will total about 10 billion dollars if the proposals of Finance Minister Franz Etzel are approved. This represents a five percent increase over anticipated expenditures during the current fiscal year. Most of the increase will go for additional old age, sickness, and veterans' benefits authorized by recent legislation. Ten billion marks (approximately 2.5 million dollars) are earmarked for defense expenditures. Of this amount some two billion marks will be held in reserve by the Finance Ministry. This year West German military expenditures will exceed the eight billion mark level for the first time. The fiscal year expenditures are expected to be held to approximately this same level, or at about three percent of the national product.—News item.

YUGOSLAVIA

Nuclear Reactor Ready

Yugoslavia's second nuclear reactor located at the Boris Kidrich Institute near Belgrade is reported nearly ready for operation. A low-power reactor currently is operating at the institute.—News item.

ITALY

'Nike' Battalions For Italy

Italy is expected to have three *Nike* battalions operational during the early part of this year. The Army section of the United States Military Assistance Advisory Group, Italy, is coordinating supply and training for the *Nike* units.—News item.

NIGERIA

Oil In Africa

Five years of search and six exploratory wells have resulted in the discovery of what is described as "great quantities" of oil in Ughelli, a region of very difficult terrain located 110 kilometers from other oil-producing areas.—News item.

MEXICO

Steel Plant Planned

The Krupp interests of Germany are reported to be planning the investment of 80 million dollars in a steel mill at Manzanillo. Raw material for the plant would come from the iron ore deposits of Las Truchas and Cerro Ortega and from the unexploited coal deposits of Coahuila.—News item.

SINGAPORE

Airbase Improvement

The British Royal Air Force will spend in excess of two million pounds to improve the Far East air force base at Tengah on the west coast of Singapore Island. Included in the construction will be a 9,000-foot runway capable of accommodating the latest type of jet aircraft.—News item.

USSR

Military Missile Tests

Press reports indicate that the USSR is test firing intercontinental ballistic missiles from a base in Siberia out into the Pacific. The first of these reports indicates that the test missile soared about 4,800 miles out over the Kamchatka Peninsula and into the sea north of Midway Island. —News item.

Gas From Coal

The USSR is employing a process of subterranean conversion of coal into gas on a large scale as a source of industrial power and raw material. At least four plants are currently in operation which use this method. One of these, located near Tula, produces 24,000 kilowatts of energy. In addition, a portion of the gas produced at this plant is processed chemically to produce gasoline. A plant near Moscow produces 400 million cubic meters of gas annually for local industrial use. It is significant that the process can use any type of coal regardless of quality.—News item.

MILITARY DIGESTS

The Philosophy of Military Power

Digested by the MILITARY REVIEW from an article by Captain L. J. Byrne, Retired, in the "Canadian Army Journal" July 1958.

A PREREQUISITE to the formulation of a national military policy is an understanding of the philosophy of military power held by the nation concerned. A specific philosophy of military power lies in the answers to these three questions:

1. Why do men use military power?
2. What is the relation of this power to society and man's other activities?
3. How are the purpose and methods of use of military power correlated?

A good starting point for consideration of these questions can be found in the military philosophy of Karl von Clausewitz.

Von Clausewitz' work is criticized as being out of date. In certain respects his work requires refinement, but it is suggested that any military philosophy valid for today will result from extending Von Clausewitz' work rather than from discarding it.

Von Clausewitz' philosophy can be summarized as follows:

1. War is an instrument of national policy.

2. In the abstract it is an act of unbounded violence; in practice it is held in check by the political aim. The extent to which it is held in check depends on the urgency of the political aim.

3. Once launched, the object of war is theoretically the overthrow of the enemy; in practice each nation has a scale on which it measures whether or not it is worthwhile carrying on with the war.

4. During the war diplomatic action is undertaken concurrently with military action.

To return to our three basic questions, what would Von Clausewitz' answers be? I believe his answers would be as follows:

1. Men use military power in a violent fashion to serve national policy.

2. Military power as an act of war is conducted concurrently with diplomacy for the achievement of a national aim.

3. Wars are directed by the political heads of state. Although the military "facts of life" may modify the aim, the military leaders must, in the last resort, subordinate their requirements to the directions received from political leaders.

Why Military Power Is Used

Von Clausewitz' answer to the first question, while unobjectionable, leaves out one basic presupposition, namely, that men use military power because they assume that, at some stage in conflicts between groups of humans, the use of force is necessary and right. Today, as in Von Clausewitz' time, this presupposition is qualified by the custom that the only social group which has the right to resort to military power outside its own territory is the national state.

The use of military power is recognized now as a legitimate instrument of national states in the settlement of international disputes and a legitimate instrument of groups within a state in the settlement of domestic disputes. It is self-evident, therefore, that the only logical aim which military power can have is one defined by the state or the domestic society.

In the current organization of the world there is no secular power higher than that of a national government. It is the national government which is responsible for the welfare of its citizens. There is, therefore, no logical restriction which can be placed on the types of action which a national state can take in furtherance of what it considers to be its vital interests.

Organizations such as the United Nations are entered into by international treaty with the obligation, or lack of obligation, normally associated with such treaties. As regards the use of force by a UN member, the charter does not absolutely prohibit its use, in distinction with the Kellogg-Briand Pact of 1928. The first duty of UN members is to seek a solution to a dispute by peaceful means—there is a succession of measures which can be used in the search for this peaceful solution. However, the use of force for self-defense is recognized specifically as a right.

Further, if the United Nations is unable to provide a reasonable solution, force normally is recognized within the UN as legitimate, even when not used in self-defense. Regardless of whether the Anglo-French action at the time of Suez is considered right or wrong, it should be noted that the United States Government, while criticizing the action, recognized the right and duty of nations to take such action in protection of what was considered to be their vital interests.

In certain passages, Von Clausewitz implied a recognition that military power was a force which influenced the course of events in peace as well as war; however, his entire emphasis was on the inherent violent nature of such power. Today, with the advantage of hindsight and living in a more sophisticated military environment, we can see that while the efficacy of military power depends ultimately on our basic presupposition, its use as a force is continuous in peace and war. The threat of the use of military power is a potent factor in the equations of policy.

In general this power can be used in any way which is consistent with the user's national philosophy. Specifically for Western Nations, it is quite conceivable that an aerial and/or naval blockade against another nation would accomplish the aim in a more humane fashion than the use of nuclear weapons. In such a use of military power, it is applied against an entire population, not just against armed forces.

There is an additional aspect of Von Clausewitz' answer to our first question which warrants comment. National policy is not within the province of the military; however, in these days of absolute weapons it would be a service to the political leaders if it were stressed that military power should be an instrument of the national philosophy. National policy should, of course, reflect this philosophy. With "absolute weapons," however, today's policies may have a much greater degree of permanent effect connected with them.

It bears emphasizing, therefore, that the use of these weapons must be controlled by the permanent features of national policy; the sum total of these permanent features is one facet of the national philosophy.

Most people have an intuitive grasp of the term military power. However, it also may encompass a wider range of meanings than might generally be supposed. In formulating an answer to the first question "why do men use military power?" let us define a meaning for military power:

Military power is the power to influence the actions of human beings, either directly or indirectly, exerted by military forces; this power is operative in both peace and war.

As an answer to the first question then, I propose the following:

Men use military power as an instrument of national philosophy. They use this power under the assumption that at some stage in human conflict the use of force by national states is necessary and proper in the settlement of national conflicts.

A Component of National Power

Again, with the advantage of hindsight, we can see that Von Clausewitz' answer to our second question can be generalized to include not only diplomacy but the concurrent use of economic and psychological power.

There may be a feeling that the use of economic or psychological power is a bit underhanded, but there is little justification for such a contention. There is nothing in the ethics governing our society which rules them out. It may not be politic to advertise their use, but their use is not improper.

For an answer to the second question "what is the relation of this power to society and man's other activities?" the following is proposed:

Military power is one of several instruments used by the state in the furtherance of its philosophy; among these are also diplomatic, economic, and psychological power.

Correlation of Methods and Objectives

Von Clausewitz' third answer as a general statement could stand practically unchanged with the substitution of "philosophy" for "policy." There is an interesting corollary to this statement which is implicit in Von Clausewitz' writings, namely, that a nation or society has a scale or rule by which it judges the worth of various courses of action.

A Planning Rule

Let us suppose that certain situations have been allowed for in our military planning, and a force is planned to meet these situations. Now consider any additional situation. If it is found that the product of the probability of the situation arising times the cost, to us, of the situation is less than the cost of the additional forces or expenditures required to cater for this situation, then the plan is correct.

The values which a nation uses to assess the correctness of its planning—for example, the cost of a certain type of force—will be peculiar to that nation, but the rule in the abstract will serve for all countries.

An example of this rule in action is the use of the strategy of massive retaliation. The proponents of this strategy contend that the probability of an enemy attack under the threat of retaliation is so small that the cost of the provision of really large land forces would exceed the product of the probabilities and the cost of the success of the enemy attack.

The critics of this policy contend that not all the possible enemy courses of action and the resulting situations have been allowed for, that small-scale actions are not improbable and do have a good degree of success, that there is an overdependence on massive retaliation, and that this policy can cost us dearly. In fact they contend the cost of forces to handle such actions is less than the product of the probability of successful enemy action and the cost of enemy success.

It should be noted that in most Western Nations the national philosophy does not call for support for the military forces for their own sake. That is, the existence of the forces can only be justified insofar as they contribute to the attainment of national objectives.

A corollary is that any military expenditure beyond those required is unproductive and cannot be supported logically. The

key phrase, of course, is "those required." In practice there must be a balance between the cost of additional forces and the benefit to be gained. Officers may not enjoy doing things "on a shoestring," but at least they can solace themselves with the thought that they are being logically consistent.

Implicit in these latter remarks, and in our answer to the second question, is the view that peace and war are not mutually exclusive conditions, but rather the opposite ends of a continuous scale.

Definers of the "state of war" have long searched for a variable upon which to base this scale. Two favorites have been the degree of use of military forces or the degree of hostility. An alternative approach would be to replace the use of military force by hostile force, including military, economic, and psychological. In general, then, we should not discuss war but rather the use of military power. War becomes the pole on a scale of possible actions, with the use of military power becoming one of the component hostile actions which the scale measures.

We now have three statements upon which a reasonably valid philosophy of military power could be built. Of course, they do not form a complete study, but should be incorporated in any more complete philosophy.

This article began with the contention that a philosophy of military power is an essential prerequisite to the formulation of a valid national military policy. A reasonable comment by the reader at this point would be that our discussion still seems rather academic. An example to dispel this impression might be in order. Offered in evidence is the case of Japan in 1941.

With the integration of religion and politics which existed in prewar Japan, it is understandable that her national philosophy would be more prominent in the consciousness of the people and their leaders than is the case in most western countries. This philosophy had as one of its deductions the moral right of Japan to be the dominant nation of East Asia. This conclusion inevitably led to the expansion of Japan into Manchukuo, China, and Indochina.

In 1941 the United States offered Japan the choice of an oil embargo (which would have reduced her military power and made impossible the full attainment of her national objectives) or the abandonment of her gains. The Japanese found it impossible to reconcile either of these alternatives with their national ethics. The United States was not just insisting on an economic or political concession, but, for the Japanese, something more fundamental.

Dr. Louis Morton, in *United States Naval Institute Proceedings*, gives us a fascinating picture of the debates which took place during the years, months, and weeks preceding Pearl Harbor. He stated:

War, the Japanese leaders believed, could not be avoided by the renunciation of national objectives. The acceptance of American terms, they thought, would doom their country to dependence upon the west forever. The price of peace was too high and as a last resort they chose to gamble on war rather than accept what appeared to them as the ignominy of a disgraceful surrender.

The key to these statements is contained in the opening sentence. ". . . could only be avoided by the renunciation of national objectives."

This example brings out the following points:

1. The Japanese military leaders could not formulate their military plans without a knowledge of the national philosophy and its expression in the national policy. A military course of action which had a doubtful chance of success could then be essential from a higher point of view.

2. The use of economic power can be just as hostile an act as any overt use of military power; the oil embargo, which was threatened by the United States if the Japanese national objectives were not renounced, required retaliation by the Japanese just as their subsequent attack required retaliation by the Western Nations.

Similarly, military planners today cannot answer the questions mentioned in the opening paragraphs until they have developed a complete philosophy of military power. This philosophy will not supply them directly with the answers they require, but it will lay down certain necessary conditions governing the relation of plans to national policy.

If a military planner has learned the lessons of the military philosophy, he will ensure that he has received the necessary background information and direction and will be able to tie his plans closely to their proper objectives.

Summary

A fully developed philosophy of military power examines the presuppositions governing the use of such power, the relationship between this power and the national objectives, and the relationship between this power and the other instruments of national power.

It sets out certain necessary conditions governing these relationships, namely that:

1. The use of military power must be consistent with the national policy in its objectives and methods.
2. The national policy in turn must be consistent with the national philosophy.
3. Military power is a force in peace as well as war; the use of this force must be coordinated continuously with the other instruments of national policy.

Survival in the Nuclear Age

Digested by the MILITARY REVIEW from a copyrighted article by Brigadier General Alden K. Sibley, United States Army, in "Revue Militaire Générale" (France) December 1958.

IN A world situation without precedent in history which poses a challenge to the American way of life and even to survival, it is most important that the American people be well-informed of the problems of our age. And it is more important that they be prepared to think—to think until it hurts. We can search the writings of Clausewitz, Mahan, Douhet, and Mackinder for, in an age without precedent, the American people have real need for guidance. The need for an informed and thinking public is prerequisite to our survival as a nation in the nuclear age.

As a framework for our discussion we may use the outline of the classic five paragraph military field order:

1. Situation.
2. Mission.
3. Operations.
4. Logistics.
5. Command.

This simple outline, when considered from the point of view of national strategy, will lend simplicity and, perhaps, a degree of force and emphasis.

Situation

Our country emerged victorious from World War II faced with two startling, unequivocal facts. First, the Union of Soviet Socialist Republics progressively revealed herself as the antithesis of a benign former ally content to live in peaceful coexistence. Found instead was the specter of a police state motivated by Marxist-Leninist international communism and relentlessly devoted to the destruction of the

Capitalist system and to world conquest by any means.

The second unequivocal fact which faced the United States following the end of World War II was the consequence of a technological revolution which she had precipitated. This revolution created a transition in weapons which was without precedent in the history of mankind. Considering that it actually was possible as late as 1825 for the British War Office to consider seriously the replacement of musketry by the crossbow in the hands of British infantry, the magnitude and suddenness of the transition from conventional to nuclear weapons can be appreciated.

In recognition of Soviet aggressive intentions and as a deterrent to global war, the principle of massive retaliation received general support in allied councils. National strategic concepts were founded on the assumption that the American democracy itself would not precipitate an aggression. The corollary to this assumption, of course, was that the military advantage inherent in a surprise attack had to be conceded to the aggressor. As a counter to surprise attack, therefore, the capacity for massive retaliation gained currency as the only effective deterrent. The limitation of this concept was the fact that little less than a direct threat to the survival of the United States would have caused her to release such a holocaust. The masters of the Kremlin knew this, of course.

They also knew that, inhibited by the horror of nuclear war prevalent in the minds of our allies, the United States should not be likely to resort to such measures to counter limited peripheral aggressions. The doctrine of total massive retaliation, and the absence of a capability for the limited employment of nuclear force which might have carried with it the conviction of plausibility, may give some clue to the predilection of international communism for conquest through subversion, sabotage, political corruption, and economic infiltration.

In the United States the recognition gradually dawned on even the most ardent isolationist that America at last had become a nation among nations, dependent economically on Europe, the Far East, and the uncommitted areas for world markets and for raw materials. With only one-seventh of the world's population and an approximately equal proportion of its natural resources, the United States scarcely could permit the sinister inroads of international communism to ring down the Iron Curtain successively on the other nations of the world.

Such a course of isolation ultimately would present the United States with a strategically impossible situation. This country faced the dilemma of being nibbled to death by mice or atomized in a world holocaust. The record of the states enslaved by international communism, however, was clear: initially, Russia, then Estonia, Latvia, Lithuania, Czechoslovakia, Poland, Bulgaria, Hungary, Romania, Albania, East Germany, the mainland of China, Outer Mongolia, Tibet, North Korea, North Vietnam, and, in process of enslavement today, Egypt and Syria—18 countries or parts of countries and over 900 million people. Those who have not yet been engulfed or subverted and thus enslaved by Communist dictatorship would be less than prudent not to provide an effective deterrent to Communist aggression. But what kind of a deterrent is needed?

In answering this question it is significant that the Communist leaders with competent scientific advisors are acutely aware of the fact that there can be no victor in unlimited nuclear war. Thus they have turned to the orthodox methods to accomplish the avowed aims of world conquest and domination by means other than total nuclear war. Moreover, while

the Free World has been diverted by the necessity of putting out successive brushfires around the periphery of the world island, the Soviet Union has been busily engaged in a sinister and relentless program of technological education at home.

To compare the number of graduates in scientific fields within the last 30 years in America and in Soviet Russia is not particularly frightening until one looks at the past two years and realizes that probably 20 percent of Russian graduates are fundamental researchers: pure physicists, mathematicians, chemists, and others. Perhaps the Russians are wrong in such a concentration of national effort in science. If they are wrong, they will have an overabundance of scientists; if the United States is wrong in developing too few scientists, it may cost our survival as a nation. In Soviet Russia a young man or woman who attains distinction in mathematics or science over the intense competition of the high schools, automatically becomes a member of the economic and social elite. Tragically, in this country the road to economic success and to the presidencies of corporations seldom leads through the laboratory. There is too little opportunity for material success in America for the pure scientist—for the fundamental researcher. Conversely, perhaps, so high a premium is placed on material success that the more lasting achievements of the advancement of human knowledge tend to get lost in the shuffle. Americans research everything but contemplate very little.

In the fall of 1957, 12 years after the end of World War II, a technological breakthrough by the Soviets emerges. The launching of the space satellite was but an outward and visible manifestation of the thoroughgoing success of the scientific education program of the USSR. Militarily, it has two significant implications. First, it shows that the quantity and the quality of Soviet scientists is at least equal to our own. It also gives pause to wonder from whence the next technological breakthrough will come and who will make it.

Second, the most recent Soviet technological breakthrough makes it clear that they are on the threshold of an operational intercontinental ballistic missile (ICBM) capability. It also may provide an answer to the enigma which has puzzled our air strategists for the past several years as to the failure of the Soviets to develop long-range tanker aircraft and the technique of in-flight refueling for their *Bear* and *Bison* bombers. It is possible that they have considered the manned bomber as an interim weapon and, with their disregard for human life, have been willing to rely on its capacity to conduct one-way missions against the Continental United States, pending the era of the ICBM.

With the Soviet's present capability for the delivery of one-way nuclear attacks on this great industrial complex, we are living today in the long-heralded era of "nuclear plenty."

Mission

The paragraph, titled "Mission," when applied to national security planning, is termed the "strategic concept." In his address in Oklahoma City on 13 November 1958, President Eisenhower spelled out with crystal clarity the four elements of our national strategic concept in the nuclear age. He said that we must:

1. As a primary deterrent to war maintain a nuclear retaliatory power of such capacity as to convince the Soviets that any attack on us and our allies would result, regardless of damage to us, in their own nation's destruction.

2. In cooperation with our allies, provide a force structure so flexible that it can cope quickly with any form of aggression against the Free World.

3. Keep our home defenses in a high state of efficiency.

4. Have the reserve strength to meet unforeseen emergency demands.

Operations

With this clear statement of our four-point national strategic concept, now let us look at paragraph three of the field order —"Operations." How can the four-point mission that the President has set be carried out? First, our nuclear retaliatory power must be maintained in the form of an ever-alert strategic delivery capacity by the Air Force and the Navy, supplemented by intermediate range ballistic missiles (IRBM's) in overseas bases, and provided with ICBM's as rapidly as the combined efforts of dedicated scientists and engineers can make them.

As the second element of our national strategic concept, President Eisenhower has prescribed that, in cooperation with our allies, we must provide a flexible force structure to cope quickly with any form of aggression. It is well to examine this, as our operational plans for meeting this second element of our mission may provide the key to future diplomacy and even national survival itself. Whereas our preoccupation in the past with a total and overwhelming nuclear retaliatory power entailed a course of action inconceivable in the absence of a direct threat to our national survival, the possibility of a graduated and flexible capacity for nuclear retaliation provides a means for relating military force directly to diplomacy in any area of the world. *A capability in being to counter peripheral aggression by limited nuclear actions should constitute a plausible use of force which could well give the Communist aggressor pause to stop and consider the consequences.*

Forces to compete successfully in limited war in the nuclear age must be widely dispersed, technically trained, extremely mobile, and, above all, self-sustaining. Thus they would not present the concentrated targets which massing of conventional firepower entails, nor would they require highly vulnerable port, depot, and logistic supply systems—ideal targets for nuclear attack.

It is entirely possible to have forces trained and equipped for limited nuclear war which, at the same time, have the capacity to fight conventional war with conventional weapons. The forces to counter aggression against the Free World must be designed, trained, and equipped with a capability for tactical nuclear combat, if need be. This, as the President has said, we are doing.

An immediate consequence of the concept of limited tactical operations of interest in passing, however, is that the aggressor is placed at a disadvantage in achieving his purpose of occupying territory and controlling populations. During the revolt of the Hungarian people in November 1956, for example, the Red Army was forced to employ 22 divisions to put down a presumably unarmed populace. Such concentrations of manpower would present vulnerable targets to a nuclear armed tactical defending force. Moreover, the masters of the Kremlin in full realization that general nuclear war would spell disaster for their cause would have every incentive to avoid extending such limited actions and so precipitate their own annihilation.

As the third element of the President's strategic concept, we must "keep our home defenses in a high state of efficiency." Great strides are being made in this field. The *Nike* defenses of our industrial and airbase complexes spell the doom of the piloted bomber. These deadly air defense missiles are being supplemented by even longer range and more effective defenses.

Thus it seems that every aspect of President Eisenhower's four-point strategic concept brings us back to the question of brainpower, and from this overriding requirement our military leaders certainly are not exempt. The weapon systems of the modern age already have become so

highly involved technically that even minor tactical units—the infantry company and the artillery battery—require scientists on their staffs. The time, therefore, has long passed for the professional military commander at any echelon to sit back, complacent in his leadership and command ability, leaving the difficult technical questions to the scientific "longhair." In the age of modern weaponry any commander who fails to know his weapons and to study with diligence the complex problems of weapon effects will progressively abdicate command to those who do.

Logistics

What is "Logistics?" The definition contained in the Outline Logistic War Plan for Supreme Headquarters Allied Powers Europe (SHAPE) under NATO reads, *"Logistics is the science of martialing the resources of nations in support of their allied military objectives."*

Classically, our military field manuals have divided logistics into five specific functions. First, supply and procurement; second, evacuation and hospitalization; third, movements and transportation; fourth, construction and installations; and fifth, signal communications. Paradoxically, however, the most important aspect of logistics is that which it is not. Several years ago in the House Armed Services Committee, Congressman Paul J. Kilday gave the following pointed definition of logistics:

An army marches on its stomach; without money there would be empty stomachs and they would march with bare feet. Without money that captivating word 'Logistics' has no meaning.

A significant example of the importance of one field of logistics, that of construction, is illustrated by the fact that NATO infrastructure, the construction effort of our European alliance, is the only function of that alliance which is considered so important as to be funded out of an international budget through a cost-sharing formula contributed to by the 15 nations of NATO.

The President stated with regard to our airpower, our defense system, and our warning system: ". . . more runways, more fueling stations, and more housing." This means more construction. This means more dollars, which must be spent carefully and conscientiously in the interest of our national security.

The construction effort, in some respects, may be described as the most important of all logistic functions. Construction in a very real sense is the first concern of any military commander. Before a weapon can be designed, research and development facilities and testing installations must be built. Before a single soldier, airman, or sailor can be mobilized and trained, classrooms, training installations, and camps must be constructed. Before a single air defense weapon can be installed, facilities must be constructed for its installation. Before a single military unit can be deployed overseas to any one of the nations with whom we have military base agreements or elsewhere, military bases and facilities must be constructed. The Army Engineers of a United States airborne division, using air-transportable construction equipment, must provide four landing strips for assault aircraft within three to five hours. With the rapid developments in technology, our complex of installations must be modified frequently, many of them actually in the course of construction.

As President Eisenhower announced in Oklahoma City, during the last five years 211 billion dollars have been appropriated for national security, an average of 42 billion dollars a year. How much of this fantastic sum has gone for construction alone, only one of the functions of logistics? The cost of a single, long-range bomber is measured in terms of millions of dollars, but the cost of long-range

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bomber bases is measured in hundreds of millions of dollars.

We think today of the high cost of nuclear material, and yet the developments of the Manhattan district in the initial 12 billion-dollar investment by this country in atomic energy at Oak Ridge, Hanford, and elsewhere was spent largely for construction. The President has indicated that the Federal Government is appropriating at a rate of five billion dollars a year for research and development, and yet when we think of the guided missile test range at Cape Canaveral, the Lincoln Labs, and the Cambridge Research Center, construction represents the preponderance of the cost of these research facilities. The construction of the *Nike* air defense missile batteries just completed has cost much more than the missiles which arm them.

Let us look for a moment then at the role of the construction engineer as it contributes to survival in the nuclear age. Before the plans for a new weapon or a new piece of equipment are off the research and development drawing board, the construction engineer must be planning his installation designs. Many of these designs will be unprecedented, requiring patternmaking engineering solutions: the construction of Arctic airbases on compacted ice sheets; of miles of tunnels in lieu of roads on the icecap, and of crackproof rigid pavements to carry 240,000-pound loads on frost susceptible, glacial till material. The construction engineer is among the first to come to grips with the realities of implementing the national strategic concept.

Command

When we consider the final paragraph, number five of the classic field order, "Command," we have a problem for the future.

In applying the field order to a small infantry unit such as a platoon, paragraph five usually reads, "I will be at such and such a place." Even when applied on the national scale, the principle of command recognizes that once a decision is made by the commander, he relinquishes for a time the control of his operations. After the commander's decision has been made, he cannot, however, sit back idly and watch the course of the battle. The commander's job is immediately to undertake plans for the next move.

What is our commander planning for the future? Again the President in Oklahoma City answered this question with finality:

One thing that money cannot buy is time. Frequently time is a more valuable coin than is money. It takes time for a tree to grow, for an idea to become an accomplishment, for a student to become a scientist. Time is a big factor in two longer term problems, strengthening our scientific education and our basic research. . . . Remember that when a Russian graduates from high school, he has had five years of physics, four years of chemistry, one year of astronomy, five years of biology, 10 years of mathematics through trigonometry and five years of a foreign language. . . . Young people now in colleges must be equipped to live in the age of intercontinental ballistic missiles. However, what will then be needed is not just engineers and scientists but people who will keep their heads and in every field, leaders who can meet intricate human problems with wisdom and courage. In short, we shall need not only Einsteins, but Washingtons and Emersons.

Thus the commander has made his decision and has launched the planning for the future. To carry out such a challenging program requires more than national fortitude. Survival in the nuclear age requires national brains. Collectively and individually, Americans must learn to think —to think hard. Young Americans must either learn to think or learn Russian.

Singapore: Emergence of a Nation

Translated and digested by the MILITARY REVIEW from an article by Pierre Rondot in "Revue de Défense Nationale" (France) August-September 1959.

IN VIEW of the rapid evolution of the peoples overseas, Great Britain's colonial policy for many years has advocated the granting of maximum freedom and concessions to her possessions consistent with the retention of the control which is necessary for the good of the Commonwealth. In the case of Singapore, this has been a matter of granting the island a responsible government and internal autonomy while retaining the military installations of the famous base.

Singapore's electors have not, however, given a plebiscite to the local government which has permitted it to realize the British objective. Instead, they have accorded the triumph to an opposition which has adopted early independence and the elimination of foreign troops as its platform.

Therefore, it hardly seems surprising that the London press of the Center and the Right shows signs of dismay.

The *News Chronicle*, a liberal daily newspaper, writes:

It is an irony of fate that one of the greatest colonial creations (Singapore had been a swamp before its colonialization) should have provoked as irresponsible an anticolonialism as that.

Lord Beaverbrook's paper, the *Daily Express*, ventures:

The future of Singapore appears to be very dark. This strategic fortress, a product of the genius of the British people, is abandoned to violent and hostile forces: its population is delivered into the hands of the tyrants. What are these false conceptions of freedom that have brought about this sad capitulation? The British Government is largely responsible.

According to the *Daily Telegraph*:

In the history of Great Britain's peaceful retreat from its overseas possessions, nothing has been more risky than to let one and one-half million inhabitants constitute an independent state whose lives depend on a defense harbor and base.

These reactions illustrate the ambiguity of the present Singapore problem perfectly: the British had thought that they had established an imperial base. Instead, they have prepared the germ of a nation.

The observer of overseas affairs has, therefore, no less reasons to be concerned about the destiny of this tiny Oriental land than does the military chronicler.

Strategy of Southeast Asia

Singapore is an island 43 kilometers long, 22 kilometers wide, and, to date, has a population of 1.5 million. It was scarcely more than a swamp at the extremity of the Malay Peninsula 140 years ago. An agent of the East India Company, Sir Stamford Raffles, appreciated the strategic value of its position and its possibilities as a center for trade. He bought the island from the Sultan of Johore and within several decades his compatriots made it "the door to the Orient," a center of commerce, and a first-rate naval base.

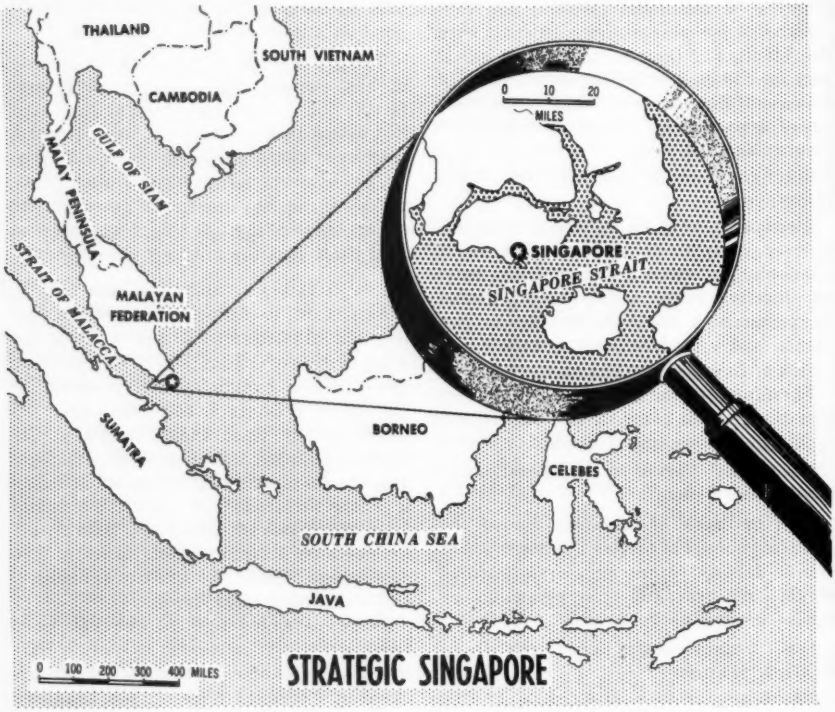
Badly defended against the continent from which it is separated by only a narrow seaway, Singapore succumbed ingloriously in February 1942 to the Japanese armies. When they reoccupied the island, the British, as their first act, insisted on reinstating the same governor whom the invasion had ousted. Next they rebuilt and modernized the base, the land defenses, and support facilities which had proved to be inadequate.

An Island Fortress

Today, one-tenth of the island's surface is taken up by military installations. The

docks, where it is possible to repair and re-equip any vessel of the British Fleet and the maintenance of which costs one million pounds sterling annually, stretch over eight square kilometers. The island has two great airfields, the only drydock between Australia and Japan capable of accommodating an aircraft carrier, and the only feasible location for the storage of nuclear weapons in Southeast Asia. The island constitutes the general headquarters and the base of the Commonwealth strategic reserve which combines the English, Australian, and New Zealand forces. It serves as home port for the British squadron of the Far East consisting of one aircraft carrier, one cruiser, four destroyers, four frigates, one sloop, and a fleet of minesweepers. It also is the home port for the task force of the Indian Ocean which includes one aircraft carrier, one cruiser, and one frigate.

Furthermore, Singapore also is a depot for relatively large British forces stationed in Malaya. But because of political ramifications, the forces in Malaya cannot be used other than for the defense of the Malayan Federation, of Singapore, Hongkong, British Borneo, and Brunei. Thus it is only from Singapore that the British, in the event of an emergency, could assist their SEATO (Southeast Asia Treaty Organization) allies—Pakistan, Thailand, the Philippines, Australia, New Zealand, as well as the United States and France. Recalling this data, a Lon-



don Weekly concluded: "The government knows that without Singapore the British forces would be of no avail whatever in a major conflict in the Far East."

Political Origin of Singapore

The geographic location of the island places it in the middle of a region where the political evolution, brought about by the development of nationalism, has been accelerated by the moral consequences of the Japanese occupation. Although the British helped the Netherlands to reestablish themselves in Indonesia soon after the war, they did not entertain any illusions that they were restoring the former state of affairs in the Malayan world. As far as their own possessions are concerned, they have chosen sides without delay. They joined the two colonies of Penang-Wellesley and Malacca to the nine sultanates of the Malay Peninsula in order to establish a "Malayan Federation" as early as 1947, and only the Communist insurrection of 1948 delayed the accession of self-government. Concurrent with the reestablishment of order, the British succeeded in orientating the internal evolution of the countries to encourage multiracial cooperation between the native Malayans and the immigrant Chinese. The Federation, whose chief must be elected by the college of the nine sultans and who maintains the relatively traditional internal structure, became independent on 31 August 1957, but the Federation remained in the Commonwealth. The British lend the Federation economic aid and maintain troops in the area for its own defense.

A Separate Destiny

Singapore was excluded from this solution from the outset. The island followed its own destiny from 1956 on, as opposed to the other Malay States which were welded together into an entity. The reasons for this decision are multiple: Singapore is not only the site of great military installations, but also of powerful commercial establishments which are almost exclusively European and Chinese, and which are responsible for Singapore's widespread prosperity. Its population is quite advanced and relatively well-educated. They finally have become accustomed to the rhythm of Western life which is so different from that of Malaya. The uprising of the Malayans has scarcely touched them. One of the essential causes of this favorable situation creates a serious political problem—that is, the presence of a community of Chinese immigrants which constitute a numerical majority on the island.

Malayan Minority

In the Malayan Federation, the Malayans are practically on a par, numerically speaking, with the immigrants—2,717,000 to 2,709,000. The presence of the Pakistani and of a segment of Indians accentuates the Moslem majority. In Singapore, on the contrary, the Malayans amount to a weak minority: 197,000 as opposed to 1,091,000 Chinese, 124,000 Indians and Pakistani, and 34,000 others, including Eurasians, Europeans, and Singhalese.

These figures disclose the primary reason why the British have conducted the evolution of the island apart from the other Malayan areas. They explain the particular difficulties contained in the current problem of Singapore; they permit us to perceive some of the disquieting aspects of the future.

Foundations of Independence

Great Britain began the political education of Singapore by granting it a certain degree of self-determination, and a responsible representative government including an elected assembly. In November 1958 internal autonomy was established by a complex and ingenious constitution.

The arrangement finally arrived at after lengthy and often arduous negotiations had to reconcile the local aspirations for independence, the rights of the indigenous

Malayan segment, the prosperity of the island and that of the peninsula, and the imperial interests and international responsibilities of Great Britain for the strategic equilibrium of Southeast Asia.

The British were of the opinion that it was neither in conformity with their political tradition, feasible in view of the climate of the times, nor opportune for the minorities themselves if the London Government were to assume protection of the minority groups. Efforts were made to make a system acceptable to the Malayans which takes into consideration their special position as the original indigenous element of the island—and yet still confers upon the autonomous government the responsibility for religious and racial minorities. Therefore, the local authorities were required to "protect, safeguard, support, encourage, and favor the political, religious, economic, social, and cultural interests as well as the language of the Malayans."

The head of the new state is the "representative of Her British Majesty in Singapore." In the Internal Security Council there will be three British members, three representatives of the government of Singapore, and one representative of the Malayan Federation.

Thus organized, the Security Council is presided over by the Commissioner of the United Kingdom who can impose his decisions on the Singapore Government. Under the same presidency, and with the same extraordinary prerogatives, a mixed interministerial committee will function which will make possible consultations between London and Singapore on matters of defense and foreign affairs that are British responsibility.

Internal autonomy will find expression through the existence of a government presided over by a prime minister and composed of elected ministers responsible to a legislative assembly of 51 elected members.

Lee of Singapore

The beginning of self-determination in Singapore was dominated by the personality of Mr. David Marshall, a "laborite," of Israeli origin, born on the island. Negotiations for the new constitution were conducted by the moderate leader of "The Alliance of the People of Singapore," Mr. Lim Yew Hock, of Chinese descent. He had established an electoral cartel which united 39 candidates of his own party, six members of the United National Organization of Malayans and four liberal Socialists. Several weeks before consultations on the constitution, this "united front" split open and the moderates went into the fight in dispersed order. From then on the victory was achieved by the very dynamic Party of the People's Action, led by its general secretary, Mr. Lee Kouan Yew, who had founded it five years earlier.

Mr. Lee, who is known as Lee of Singapore, is 36 years old; he is third generation Singapore-born of a Chinese family of shipowners, a reputed lawyer married to a colleague at the bar, father of three children, and leads a comfortable middle-class existence. His fame largely is due to his professional activity for the benefit of the trade unionists. Educated at Cambridge, he is an admirer of British democracy but hostile to the colonial system.

He proclaims: "We must not hate the English because they are English . . . but we must fight the white man because he is for colonialism." He is hostile to communism. Not long ago he said that he would never contemplate voting for it unless he had no other choice between it and colonialism. He does not adhere to doctrine and considers events and ideology in the light of local politics and how they affect the interests of his city. His opponents have, upon occasion, accused him of having dictatorial tendencies because of his "shock treatment" method.

Mr. Lee Kouan Yew's style in his electoral campaigns, pivoting on total inde-

pendence, has been rather vehement; it certainly has netted him the support of the Left and has brought him a measure of triumph that caught all observers unaware. Although he did not rally many more than half of the registered voters, his party obtained 43 seats of a possible 51, against four that went to the "Popular Alliance" of Mr. Lim Yew Hock, three to the "United Malayans," and one to the Independents. The liberal Socialists, representing the conservative Chinese, have no one elected. The average age of the members of the new assembly is under 35. It consists of 33 Chinese, 10 Malayans, and seven Indians and Eurasians.

Prior to forming his government, Mr. Lee demanded the release of eight ringleaders of the October 1956 unrests who were suspected of pro-Communist activity. The British Governor felt that he could not object. As a result many now wonder whether Mr. Lee will not find himself overrun by demagogues whose popularity will soon outshine his own.

Prosperity or Austerity?

Assuredly, the new Constitution of Singapore gives the right and the legal means to the British to keep and use their indispensable base. The difficulties involved in the operation of a military organism of such complexity and weightiness in the midst of a possibly hostile population are obvious.

The British, therefore, count on the moderation, energy, and realism of the new head of government. They did not wish to see him in power, but now the violence of an electoral campaign which was directed against the "white man" can and must be forgotten. The essential is that Mr. Lee Kouan Yew has agreed to play the game and, without dissimulating his ambitious views on the future, has accepted for the present the promulgation of the constitution in the name of the Queen.

The British have created Singapore out of virtually nothing. Today, they breathe life into it. The British think that if they are eliminated, the city will be condemned to perish. The British military installations play a considerable role in local labor markets and in internal trade. They employ 30,000 people—that is 19 percent of the available manpower—at a pay scale that is vastly superior to the customary one. It is estimated that one-tenth of the population of the island derives its livelihood directly from British military expenditures; a still greater proportion benefits indirectly. Indeed, the climate that has been created and safeguarded by the Western presence counts for much in the drive and prosperity of the great private firms who animate the affairs of the emporium. Furthermore, the Commander in Chief of the British Naval Forces in the Far East, Admiral Sir Gerald Gladstone, is said to have declared: "If we were to leave, one-quarter of the population would starve to death."

Inevitable Struggle

Mr. Lee Kouan Yew is too much of a realist to want the suppression of such well-being and the disappearance of so much wealth. His idealism leads him to revise the social inequalities that accompany it without delay.

His program aims at "realizing a social revolution by peaceful means," to establish a "State that exercises foresight," fair but firm, and to guard the island both from "colonial Capitalist excesses" as well as from false Communist seduction. This encompasses reorganization, unification, reinforcement of trade unionism, obligatory arbitration of labor disputes, a strict regulation for employment in order to increase and stabilize it, and a more rigorous taxation of the high industrial and commercial benefits. All this is not geared to please private enterprise, especially foreign enterprises; difficulties of adaptation are to be expected.

In the great commercial center and international steppingstone of Singapore,

easy luxury coexisted with profound misery and loose morals in an atmosphere of liberal capitalism. For the new leading classes of Asia these are the results of colonialism. As far as they are concerned, it must be stamped out to benefit an equalizing of the standard of living and stricter morals. While waiting for the law that is to revise economic data, material austerity begins to make itself felt and police regulations are imposed in the sphere of morals.

Singapore and Greater Malaya

In the place of a 19th century steppingstone there will be born—in the 20th century—a nation. But Lee of Singapore knows well that a nation cannot be built on narrow topographic and demógraphic foundations. He thinks beyond the small island and his thoughts are directed toward the Malay Peninsula.

What pleases the Cambridge-educated Chinese the most in the new constitution is perhaps the bait of a "plural society" that it presents, with a basis of Malayan culture. The "Party of the People's Action" has already made known that it intends to reorganize national education with Malayan becoming the national language. The party wants to bring about a fusion with the Malayan Federation as soon as possible, under a democratic and non-Communist Socialist regime. Among other things, the peninsula would contribute not only its natural resources—tin and rubber—but also a great ethnic Malayan element and the stability of a still traditional population. Together with the peninsula, the island constitutes a "common market" and would play the role of a powerful industrial and commercial forum for both.

In the eyes of the moderate leaders of the Malayan Federation, Singapore is something of a threat. In addition to the numerical weight of the Chinese and the dangers of Communist infiltration, the audacity of advanced socialism disquiets them further.

Reassurances and Cooperation

The new Singapore Government has striven to reassure them. Mr. Lee Kouan Yew journeyed to Kuala Lumpur on 13 June and—following his talks with the Malayan Premier, Dato Abdul Razak bin Hussein—a joint communique emphasized the "both cordial and animated" character of their "free, frank, and cordial discussions." Supposedly, the main point of the discussion was about the operation of the Internal Security Council in which both states will be represented. When questioned, Mr. Lee hinted that he would not support the Socialist opposition of Malaya and declared that he would cooperate with the Malayan Government against the Communist Party which is their common enemy.

The future will tell how far and how fast the collaboration between Singapore and the Federation can progress. Could the dream of a "Greater Malaya," which only yesterday held a certain attraction for the peninsula, be resurrected in the event of a rapid success? Thailand, which only 50 years ago had to restore four sultanates to the Malay States under British pressure, still rules, rather paternally, approximately 700,000 Malayans in its southern provinces. The incorporation of this national minority would invigorate Malaya somewhat.

The perspectives of Singapore thus overflow its narrow territorial boundaries to a great degree. The city finds itself in the heart of a Malayan world of almost 100 million people, as well as in the middle of the strategic complex of Southeast Asia. The government of Mr. Lee thinks, above all, of the first of these dimensions, while the Cabinet in London has its thoughts on the latter. From their mutual arrangements and reactions in the course of the delicate adjustments of the months to come, there will derive many new elements for the balance of that region.

The Principles of War and the Development of Means

Translated and digested by the MILITARY REVIEW from an article by Commander Guilhermino de Magalhães in "Revista Militar" (Portugal) June 1959.

IT IS not uncommon for smaller nations to protect themselves against the ambitions of stronger ones by building a solid wall of mutual defense in accordance with their material means and the amount of danger which threatens them. The strength of such a defensive structure depends essentially on the power of its military machine which consists of the close functional combination of naval, air, and ground forces. The strength that this complex machine can attain is dependent upon the means of combat power that it is provided; this, in turn, is closely dependent on the national resources put at its disposal.

As the complexity of the material means for war increases, the subordination of the combat capacity of the military machine to the support capabilities of the nation in the scientific, economic, and technical fields becomes more and more significant. The cost of these means creates a burden so heavy that not all nations can maintain them at the level demanded even by their own national defense needs.

Changes in Concept

The modern means of war and the tremendous changes they have wrought in the economic, scientific, and technical fields of a nation also have shaken, if not altered, some of the classic concepts of the art of war. Strategy and tactics, which until recently were divided at the entrance of the battlefield, now walk together without form or dimension.

Some missiles, in view of their tremendous range and the extraordinary nuclear power which they can carry, have assumed the classification of strategic weapons. This designation has been given, for identical reasons, to long-range bombers carrying conventional explosive charges or nuclear charges. In the United States the Strategic Air Command (SAC), the naval forces made up of nuclear submarines equipped with missiles, or the strategic aircraft carriers represent the significant change in the classic concepts of tactics and strategy and their common frontiers. Now, instead of placing the distinction between the two basic phases of war at the line which separates the preparation and movement of the forces for battle and the battle itself, we should place it on the responsibilities along the chain of command and direction. Thus strategy will be the responsibility of the higher echelons while tactics will belong to the lower levels on the chain.

The great developments which have revolutionized military techniques are a product of the scientific research which, during a war, assume a breadth and depth not known in time of peace. Because the defense of a country depends greatly on the weapons and other means of war which result from scientific research, it is logical that the principal effort should be made in the field of weapons development. Generally, great military inventions are made when hostilities are well-advanced—when there is no time or opportunity to evaluate their real capacity.

Problems of Prediction

During the long period of military history in which the development of the means of war progressed slowly, it was easier to predict the future by extrapolation from the experiences of the past than it is today. Future concepts become more difficult to visualize following a major development in the means of warfare. Difficulty in extrapolation was felt by the

navy during the transition from sail to steam navigation, which afforded much greater mobility, and during the transition from short-range artillery to long-range artillery.

In the army the situation was the same: easy extrapolation in the initial periods when forces in being were made up of conventional infantry, artillery, and cavalry forces which had been developed slowly over the years until the beginning of the first global conflict. Difficulty was encountered in extrapolation from that period to the one that followed. This period was characterized by a rapid and general trend toward mechanization and motorization of the component forces resulting in much greater mobility, a modification of strategy and tactics, and a greater concentration of offensive potential.

These changes began during the conflict of 1914-18 and, when the end came, one could already see the general outline of the new methods which would be adopted in a future conflict of the same magnitude.

An Era of Achievement

Today, we find ourselves in an era of exceptional achievement in the work begun many centuries ago to develop the instruments which man has been using to wage his unending wars. Suddenly, however, the development of means abandoned the fields of classic research to begin anew in others whose possibilities seem to have no limits. Nuclear weapons which now have a destructive power equivalent to a few million tons of conventional explosives and missiles with ranges up to four or five thousand miles have revolutionized war and deeply altered the basic principles which govern it. We should note, however, that the first two nuclear bombs, although of modest power by today's standards, were dropped over the cities of Hiroshima and Nagasaki in August 1945. The first missiles represented by the *V-1* and *V-2* rockets, whose range did not exceed 180 miles, were fired against London and other cities in the south of England in June and August 1944.

When World War II ended, the Americans had a substantial reserve of nominal nuclear weapons in operational condition. Others of great power—50 and 100 kilotons—were in the experimental phase. Besides the *V-1* and *V-2* rockets the Germans, in 1944, had other types of guided and ballistic missiles as fast or faster than sound in various stages of development.

The technical surprise which accompanied these two weapons greatly exceeded that attached to the appearance of the submarine and the airplane. The extraordinary progress which we have witnessed in these weapons since 1945 has excited the imagination to such a point that many now see in the missile with a nuclear warhead a weapon that will concentrate the enormous capabilities of the two to form the absolute weapon—an incomparable thing which can, by itself, decide the destiny of the world.

But now, free from all this fantasy, we can look at these strategic weapons of 1944-45 more objectively. We can have a very clear idea of how they and their improved versions will be used in a third world conflict—at least until new means of combat will cause missiles and nuclear weapons to be designated as conventional.

Deliberate Assessment

When World War II ended, nations had begun work in the atomic and nuclear fields from which the missiles and nuclear bombs emerged to become the most powerful weapons engendered by man—more powerful than he had at first imagined. The employment of both in the last stages of the war had been sufficient proof of what one could expect in the future from the use of a weapon of such tremendous range and in which the explosive power was measured in kilotons. So valuable did the new weapons appear that the three

military services, thinking that their individual importance would diminish if they did not possess them, threw themselves into their development with enthusiasm.

Airpower and Nuclear Weapons

The air force greatly increased its strategic power and its own prestige with the new weapon. At the end of the war the air force was disillusioned with the real value of its contribution to the final victory. As late as 1942 it thought that a massive air offensive against the vital points of Germany would be a surer and faster way of bringing that country to defeat; for this reason the offensive began with all the vigor of which the Allies were capable. But the war went on for three more years and if the Germans had not lost the Battle of the Atlantic and the war with Russia—both on the surface—the air offensive of the Allies could not have kept them from winning.

Today, and for a few years to come, strategic bombers carrying nuclear weapons to great distances are and will be one of the stronger reasons for avoiding aggression.

The air force did not wish to remain a spectator in the rapid progress being made in the field of missiles and, therefore, adapted these new devices to its fighter and interceptor planes for use against air and ground targets. It did not limit itself to this for, at least in the United States, it came down to the ground and equipped itself with missiles of medium and long range to compensate for the probable limitation of the strategic value of its bombers.

First, the nuclear bomb and then the missile consolidated the position of the air force as an independent arm, separating it increasingly from its initial role of tactical support of ground forces. On the other hand air weapons depend more and more on fixed ground bases which are easily located and destroyed by the enemy because of their size and immobility.

Nuclear Armies

The ground force has gained many advantages from the utilization of nuclear weapons and rockets although certain restrictions have been imposed: modern aviation had greatly reduced the value of artillery, both field and antiaircraft, and missiles have even threatened the prestige of the tank and infantry. On the other hand, missiles have given the ground forces a new artillery of much greater range and power with incomparably greater flexibility of employment and satisfying, at the same time and with equal efficiency, requirements of a tactical or a strategic nature. These devices have solved the problem of tactical support which the air arm never answered completely. This is the guarantee of adequate support at the time and in the quantity required by modern offensive action. These reasons explain the interest and respect modern armies have for the missile. In turn, the missile has conferred the character of a strategic force on the ground forces.

The employment of weapons of such characteristics, especially in regard to range and power of destruction, will alter deeply the basic methods of combat and even the structure of armies. Quantity will give place to quality, with continuous fronts being transformed into areas occupied by small, widely dispersed units. Combat units will employ dispersion and mobility as the only means of surviving nuclear attacks so that they may respond with nuclear attacks of their own.

It is the special characteristics of these weapons which make their employment a great responsibility. The armies of today cannot consider obsolete that which, until so recently, was the basis of their combat capacity. Production and development of conventional weapons must not be abandoned. It would ill-serve the army—and consequently the country—to consider as old and useless the present conventional means of combat.

Nuclear Navies

Of the three services, the navy was the one that profited most from the results obtained by the scientists and technicians in the very fertile fields of nuclear energy and missiles. From the first of these fields came the *Nautilus*, launched in January 1954, the first of a series of vessels employing nuclear propulsion with an underwater speed of more than 30 knots and an endurance far superior to that previously reached. This system of propulsion has been applied by the United States also to surface ships and by Russia to an icebreaker now in its experimental stage.

Ships of such costly construction would have lost half their real value if they had to employ conventional weapons. This was made unnecessary by the simultaneous appearance of new weapons of tremendously superior offensive capacity. Nuclear submarines carrying missiles of 1,000- and 1,500-mile range represent the military weapon with the greatest strategic capacity now available.

It is true that the submarine uses only the short- and medium-range missiles and it is not probable that the navy with its space limitation will ever use missiles larger than the *Polaris*. But the natural mobility of naval vessels permits them to move close to their targets without detection until within range of the missiles they carry.

Conventional Weapons

The navy, even though it occupies a position of advantage in the field of missiles, cannot eliminate the offensive and defensive potential of its conventional units and weapons. The Russian Navy, for example, simultaneously with the adaptation of nuclear propulsion to its new submarines and the equipping of all surface crafts with missiles, continues to build an oceangoing fleet of conventional submarines.

The air force, because of the justified interest which it had created in some countries and the rapid progress which had been made in aeronautical technology, was, at the beginning of World War II, in a much better condition for war than it had been at the end of World War I. Aircraft gradually were becoming more flexible and gained more offensive power; they were organized in tactical units, and coordinated and directed toward a common objective.

Interdependence

Mass began to compensate for the lack of precision in air weapons, and close air support, operating with armored units, began to replace artillery in the support of advancing ground forces.

The air force already had acquired great autonomy. This, coupled with its speed and powerful weapons, gave great value to the airplane as an offensive weapon. Thus started serious competition for air supremacy, not to make the skies another theater of operations but rather to make control of the air a requirement for ground operations. The victory that Germany wanted over England in the first two years of war and the victory that the Allied aviation tried to attain over Germany, clearly illustrate this phase of the development of the air force. At the time the air force was demonstrating the value of cooperation in the ground effort, it was decided that a decision from the air would require continuing air supremacy—something impossible to accomplish.

The rapid progress of aviation made it even more unfortunate that it had to be dependent upon ground installations. However, this situation will continue to exist and become worse as the means for the destruction or interdiction of bases become more effective. In this very important aspect, the air arm lacks the advantage of naval aviation based on highly mobile carriers.

In the Second World War the ground forces exploited the tactical mobility, stra-

tegic flexibility, speed, and concentration of fire which was permitted by mechanization.

The tank had assumed the lead as the principal instrument of the offensive and appeared now in 1939 as an ideal element for the support of the infantry, giving to this arm a new character through new independence from artillery.

The armies definitely left the monotony of the foxholes, preferring offensive action employing tanks and the destructive and demoralizing capability of tactical support aviation. It was with the tank-aircraft team that the Germans destroyed the forces of Poland, France, and all southeast Europe; it was also with it that the Russians on the east and the Anglo-Americans on the west gave the German forces the *coup de grâce*.

The war of position gave way to a war of initiative, mobility of the offense, confusion, and contention. Instead of two opposing fronts, continuous and well-defined, there were now two complex forces which looked for and chose their targets in the zones of least resistance. The Maginot Line, a masterpiece of French military technical genius, was little more than an obstacle which the German troops bypassed easily. Neither the tactical nor the strategic objectives were attained with this costly construction for it was not able to contain the German advance to the West nor did it permit France and her Allies time to prepare and distribute their tremendous reserves.

Evolution on the Sea

The sea war of 1939-45 began at the point where the First World War ended.

The merchant marine was organized from the very beginning into convoys under the protection of the navy. All naval operations, particularly in the Atlantic and the Mediterranean, were directed toward the attack and defense of the sealanes so vital to the Allies: the two opposing navies had, as their main objective, the sinking of these convoys.

During the first three years the so-called Battle of the Atlantic followed this pattern, modified only by the unexpected appearance of new types of mines fired from German planes and submarines in the rather shallow waters which surround England. Magnetic mines and pressure and acoustic mines appeared—all of them aimed at destroying merchant ships.

Otherwise, the number one enemy of the convoys was the same submarine, employing as a principal weapon the same torpedo, and utilizing the same tactical procedures as those used at the end of World War I. Among the defensive measures for the merchant marine, naval aviation was assuming an increasingly important role. Naval aircraft were based on carriers for the direct or indirect protection of the sealanes far from the coasts and on the shore for the continuous patrol of the coastal areas. The advent of radar gave the plane an enormous capacity for detecting submarines.

In the Pacific, hostilities assumed a new aspect for which none of the contenders was prepared, but which marked the beginning of a new era in the art of war on the sea. Before Pearl Harbor, the Americans and Japanese were convinced that the decision of a war between them in the Pacific would be decided by the battleship. They considered the aircraft carrier too vulnerable to submarine and air attacks to survive. Contrary to this expectation, the battleship gave way to the aircraft carrier and was left with the modest role of supporting the new master of the seas.

The American Fleet adapted a new operational formation to meet the new situation, organizing itself in forces and groups based on aircraft carriers and supported and protected by battleships, cruisers, and destroyers—a formation which later was generally accepted. These op-

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erational forces represented three basic principles of war: concentration of power, mobility, and economy of forces.

Conclusions

The development of the means of war and the close conjugation of the three services which was achieved during the 1939-45 conflict, led the belligerents to a new type of war and opened the way to final victory for the Allies. It was the landing operations on the European and African Continents and in the islands of the Pacific, executed by joint and combined forces, in which the landed armies were transported, protected, and supported by the navy with the assistance of the air arm. We can, in fact, distinguish the landings in the Pacific from those in the Atlantic because they were characteristically naval operations in which the air and ground support was provided by the navy. However, the secret of victory of all operations of this kind could be found in the perfect coordination of forces. This confirmed that in spite of technical progress in each of the forces not one of them can, independently, be called sovereign. None has the capacity to obtain a decision without the cooperation of the other two.

This principle has not been altered by the appearance of the new means of war. Missiles and nuclear weapons have added to the arsenal of conventional means but have not replaced them.

This increase in potential has been the same for all forces and, therefore, keeps their relative positions unalterable. It reaffirms the principle of interdependence in a decision for victory.

The Antitank Rocket and Its Use

Translated and digested by the MILITARY REVIEW from a copyrighted article by Erich Hampe in "Wehrwissenschaftliche Rundschau" (Germany) May 1959.

DURING the First World War the machinegun prevented movement on the battlefield until the infantry regained momentum with the support of tanks. During the Second World War the tank was dominant in the offense. No strong defense against it was possible, except by specialized units. Antitank rifles, bazookas, and rifle grenades were means for use in close combat and effective for "the last stand."

In today's warfare the tank still will represent the backbone of the offense. Because the NATO shield and the local land defense must be geared to counter all attacks, the value of a general and more or less simple weapon that is effective against tanks becomes obvious. New developments in antitank rockets have made such a weapon feasible.

Procedure

Most modern armies now have antitank rockets either in the experimental stage or as a part of the standard equipment of their units. The limited range of the infantry's antitank weapons of the past, such as the panzerfaust and the bazooka, has been exceeded greatly. Depending on the size and weight of the antitank rocket, it can be launched directly from the ground, from a cross-country vehicle, helicopters, or slow-flying aircraft. Some weapons have a range of over 3,500 meters, but the average range of these weapons is about 1,600 meters.

Most of the new antitank rockets are guided by signals transmitted over fine wires which unreel from the missile in flight. As the missile is launched it first climbs, gaining altitude at a 10- to 20-

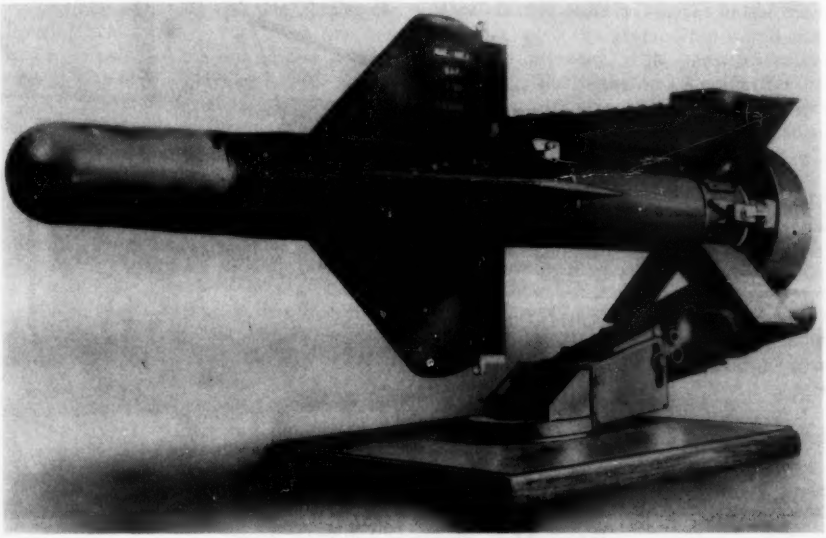
degree angle, and then becomes guidable. It is then guided to its target by the gunner who must be able to see the target. Fieldglasses can be used as a sighting device to observe the flight of the missile and its route to the target. With this line of sight system, about 60 to 80 percent accuracy can be expected, and even fast-moving targets can be engaged successfully. In order to make the missile and its route visible to the gunner, a burning tracer element is used in most types of missiles. Normally, a shaped-charge warhead is used which is activated in flight. With most types of guided missiles a fragmentation warhead is available for use against infantry targets.

Because of the relatively small size and shape of this new weapon, it is easy to conceal from the enemy. It can be controlled from a position up to 100 meters away from the launcher as long as the gunner can see the target. Upon launching, normally there is no smoke or dust cloud visible from the front. In the air the rocket can be seen by the enemy only at immediate proximity; it is questionable whether it can be seen from a buttoned-up tank.

Different Types

The Australian *Malkara*, whose length is 1.8 meters and whose weight at takeoff reportedly is 90 kilograms, is the largest of all known antitank rockets.

Smaller in size but no less effective, the *SS-11* was developed in France. Its length is reported at 1.16 meters, its weight at takeoff is around 28 kilograms, and its maximum range is given as 3,500 meters. The *SS-11* can be mounted on motor vehicles or can be launched from aircraft. A jeep and trailer have been developed as a carrier for this weapon; the trailer can carry nine rockets. The hollow charge of the *SS-11* can penetrate armor 60 centimeters thick. A smaller and lighter variation of the *SS-11* is the *SS-10* which also was designed in France. It is 0.86 meters



Australian *Malkara* antitank missile

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long and weighs 15 kilograms at takeoff. It has a range of 1,500 meters and can be launched from the ground from a supporting yoke.

An English firm has developed the *Type 891* whose length is reported at 0.84 meters and whose weight is 18 kilograms. This weight includes the cylinder in which the weapon is transported which also serves as a launcher. It can be launched from the ground.

The smallest and, therefore, particularly versatile antitank rocket is the *Mosquito* which has been constructed jointly by a Swiss and a German firm. The length of this antitank rocket is 0.93 meters, its takeoff weight it 10.5 kilograms, its speed in flight is 85 meters per second, and its range is approximately 1,600 meters. This rocket does not need a special launching device because it can be launched directly from the ground. It can be transported in a carrier on the back of a gunner. The *Mosquito* can pierce 40 centimeters of armor.

The German-built *810 Cobra* antitank rocket is another small and lightweight version of this defense rocket group. Total length of the *Cobra* is 780 millimeters, its hull diameter measures 100 millimeters, its weight including the warhead is 9.5 kilograms, and it has a mean velocity at target approach of 85 meters per second. Its range is up to 1,600 meters. The accessories correspond with the measurements and weight of this light guided missile. Thus the cutoff signal modulator is only 155 millimeters wide and 220 millimeters long. The hollow charge has a penetration capability of 440 millimeters of armor. In the place of the hollow charge, explosive charges or a training projectile can be used.

French *SS-11* missile on helicopter mount

This missile is a typical one-man

weapon. For transportation the missile is placed into a strong foam casing. When removed from the casing and with the head attached, it can be carried by a handgrip. The gunner can carry one missile in each hand and the control mechanism slung around his neck. Only a few operations are required for combat readiness. A simple base plate is placed under the missile to avoid making a dust cloud during launching. The rocket cable is anchored to a solid object such as a tent peg. Eight rockets can be set up and one gunner can launch them in any order with one control mechanism. Thus one soldier is given a surprisingly high degree of combat power. The missile is simple to operate, and the gunner requires little special training. Guiding the rocket in flight must, of course, be learned through practice. For this purpose the manufacturer has developed an excellent training device so that a live rocket need not be used.

Antitank Rocket as General Weapon

World War II taught that specialized antitank units were not always available at the right place and the right time in the ever-changing tempo of battle. Such specialized units—able to follow rapidly moving combat action and capable of firing on targets rapidly—probably will still be used. But because attacks by tanks can be anticipated in places not covered by these units, the antitank rocket must be considered a general weapon for use by all arms—especially the infantry. Such a general weapon fulfills its task best when it is lightweight, highly mobile, and can be concealed easily.

Because of its characteristics, this weapon can be used readily in antitank operations. It can be issued to dismounted troops as well as those mounted in armored personnel carriers. Further use of this weapon is envisaged for infantry, mountain troops, and engineers.

The greatest value of the new weapon will be as an infantry antitank weapon. There is no doubt that equipping the infantry with the new weapon will increase its capability to resist tank attacks and will improve its morale. The antitank rocket can be deployed down to platoons without great difficulty. Since eight rockets can be directed by each gunner, one antitank combat team per platoon, consisting of two gunners and one truck driver, could move 16 antitank rockets into position and ready them for action. Ammunition for at least two or three more charges could be carried in the truck together with the team. This would provide the infantry with great defensive power against tanks and would offer effective support against tank breakthroughs and infantry attacks supported by tanks.

Special Uses

Similar equipment for mountain troops and engineers would not only increase their combat effectiveness but would render valuable assistance in special operations. If the warhead were exchanged for a dummy round the missile could be used to transport such items as ferry cables and mooring ropes for floating bridges and ponton bridges across rivers. In this manner, it would facilitate the construction of cable railways and suspension bridges.

By the same token, units that have security and guard missions often have to rely on inadequate means of defense against enemy tanks. Equipping them with antitank rockets would provide increased defensive power without any great additional effort. With adequate distribution this would not impose an additional burden on those units, since no special arrangements would be needed for transportation, maintenance, or depot facilities.

As Antitank Obstacles

The new weapon, due to the small target it presents, can be employed effectively to defend tank obstacles at certain critical terrain features.

Building up defense zones in depth strongly manned with rocket-equipped units would constitute a potent area defense that would at least delay the enemy's advances. The effectiveness of such defensive zones could be increased further by using modern means of reconnaissance to discover tank concentrations, thus permitting their early destruction.

Motorized or aerial armed reconnaissance missions can be particularly effective if the reconnaissance units are equipped with the new weapon. Tank concentrations sighted during reconnaissance operations could be attacked from well-concealed positions by a numerically inferior force. The moral impact on the enemy of such an attack might well be a considerable factor.

While this type of weapon is intended primarily for antitank combat, since it is a sort of "David's sling" against a Goliath, there are other possible uses which can be exploited. By carefully choosing the type warhead to be used, important point targets such as machinegun nests or small fortified emplacements can be destroyed.

Conclusion

It is probable that the mainstay of the attack of the future will be the tank. If an antitank weapon such as those described above would be available all along the line of combat, the success of a tank attack would be seriously in doubt. The value of the new antitank weapon is of obvious importance and should lead to its general use in the armed forces.

Defeatism

Digested by the MILITARY REVIEW from a copyrighted article by Major General B. T. Wilson from "The Army Quarterly and Defence Journal" (Great Britain) January 1959.

IN HIS *Decline of the West* Spengler remarks rather clumsily that: "to name anything by a name is to win power over it." He might have added, "and the simpler the name, the greater the power." A name like schizophrenia, for instance, seems to win no power at all. But defeatism is an easy word which conveys some meaning even to the ignorant.

Historical Review

Defeatism also has its history. The *Concise Oxford Dictionary* defines it as: "Conduct tending to bring about acceptance of defeat, especially by action on civilian opinion." First coined in 1904, it came into common use in 1915. According to Spengler, therefore, France required power over a new kind of moral weakness soon after the start of the 1914-18 War; Great Britain experienced the same need somewhat later. History confirms these suppositions.

The discouragement of France stemmed from the disastrous early course of the war and culminated in the profound disappointment caused by the failure of the Nivelles offensive in April 1917. Not only the people of France but also the French Army were affected. Many weary months were to elapse before the indomitable Clemenceau, at the head of the government, and the snarling Pétain, in the field, were able to restore French morale to its proper pitch. So it was that for the remainder of the year 1917 almost the entire burden of the Western Front fell on Great Britain. The British Army in France, now approaching its greatest strength, proceeded to make an almost continuous sequence of offensives from the end of April until November 1917.

The time was to come, in the autumn of 1918, when the number of German prisoners captured in a battle far exceeded

the tally of British casualties. It did not happen like that in 1917, and the casualty lists were terrible. The British Army took its losses with admirable fortitude, as did the people of Britain and the Dominions. Mr. Lloyd George, the British Prime Minister, however, was aghast. Although absolute for victory, he abhorred the blood and mud of Passchendaele.

In his view, the best plan for 1918 was to hold the line in France against all assaults and to wait for the Americans to join in the struggle. Other prominent men were not sanguine of the success of such a policy and thought that the war had gone on long enough. Lord Lansdowne was one of them, and it is with his name that the "peace feelers" of the autumn of 1917 are linked. But the Prime Minister, for all his failings, was a great leader and most emphatically not a man to despair of his country. He quickly crushed the peace feelers, and defeatism returned no more to pester his conduct of the war.

But what was the exact significance of the new malady of morale? After all was said and done, nations had become tired of a war before. Only a few years previously, Russia had wearied of the struggle with Japan in the Far East and had patched up a disadvantageous peace. Yet the word defeatism was not bandied about then.

In truth, a great gulf of circumstance separated the downtrodden masses of Russia in 1904 from the democracies of France and Britain in 1914. In the autocratic regimes of the past, like Czarist Russia, only the elect could indulge in queasy qualms about the eventual outcome of a war. The common people just had to take what came to them.

This was not so with the two peoples of the *Entente*, for they had long been widely educated and were well-informed of world events. Their rulers, whether they gained power by violence or merely by election, now had to reckon with the hopes and fears of the masses. Ordinary men and women had, in fact, become fully conscious that they bore the chief burdens of the national struggle for existence. This awareness of the entire setting of events tended to make the populace resemble a huge crowd, which becomes downcast readily and is as easily elated. Politicians of every hue could play upon this new sensitiveness of the public to gain their ends. Some would be humanists with a genuine hatred of war who believed in turning the other cheek to avoid it. Others were unscrupulous and ambitious men in search of shortcuts to power in a new political alignment. A few would have no stomach for the perils and calamities of war and would favor discretion as the better part of valor.

Such were the original exponents of defeatism in 1914-18 who muttered in the wings and murmured among the audience as the great drama of absolute war unfolded. They were the discoverers of a modern-day distemper of the common will which required a new name to describe. Hereafter, defeatism was to become endemic in all civilized communities, not merely during the turmoils of war but in the struggles of peacetime as well.

Prelude to Destruction

Thus when Hitler seized power in Germany, he was quick to see that he might be able to soften up nations with defeatism as a prelude to their destruction by force of arms. In due course Europe became familiar with all the rascally mechanism for inducing the acceptance of defeat—the swarm of arrogant "tourists," the groping tentacles of the fifth column, the turncoat broadcaster, and finally, like Mephistopheles through a trapdoor, the portentous and plausible Quisling.

The basic notion of defeatism is that all governments oppress the governed and grind the faces of the poor. For this reason, so the defeatists say, ordinary people would notice little difference if the en-

lightened "new order" of a foreign state were to replace an outmoded and inefficient national system of government. Freedom, the crowning glory of centuries of endeavor, of course, goes by the board. That is the snare which lies hidden in the tangled undergrowth of defeatism.

Strangely enough, at this precise moment, various "pressure groups" are busy trying to persuade the people of Great Britain that it would be better to accept Soviet domination out of hand rather than, in any circumstances, to resist it with nuclear weapons. Many of those who compose these groups are no doubt honorable men, but others are the stuff of which defeatists are made.

Yet in a state where leadership is strong and corruption absent, defeatism makes little headway. A good leader stamps it out as Lloyd George did in 1917. Winston Churchill also reacted violently to any whisper of it as in 1942, when idle talkers in Egypt were saying that from the strategic point of view the loss of the Nile Delta would not matter very much. Such playing down of a basic object of policy is a characteristic symptom of defeatism and should be regarded as a danger signal.

In the Services

The last place where defeatism should be suffered to raise its cobra head is in the services, particularly in the army which fights on land and is the kingpin of war. It has been shown how, in 1917, the steadfastness of British troops in battle evidenced itself to the British people and made it easy to resist peace feelers. Throughout World War I, the morale of the army was something particular to itself and seemed unaffected by the anxieties of those outside it. In spite of its tenfold increase in size, it fought with all the detachment of the small professional British armies of the past, like those of Marlborough and Wellington. Some of the credit for this admirable behavior was due to the pattern of excellence provided by the British Expeditionary Force of 1914.

Vis-à-vis defeatism, therefore, a regular army of surpassing efficiency and virtue is a national asset. Efficiency and virtue are, in fact, qualities which run well together in double harness. Once or twice in a century, when efficiency wanes, the rulers of Britain become conscious that virtue by itself is not enough, whereupon they radically recast their military forces. The results have always been good.

In conformity to this happy precedent, Britain's latest new model of 1961 bids fair to become a long-service professional army of the highest quality. Small it may be, but still a prototype as excellent as Cromwell's "Ironsides," Moore's Light Brigade, and Haldane's British Expeditionary Force were in their day. Prototype is used advisedly, for cold war operations often start in a great flurry and bog down into long-lasting delays: A few crack formations of the Territorial Army might come in handy. The times are disturbed and a government should not forget that the army is the ultimate ratio for the preservation of law and order. A strategic reserve of quality should always be available in the country for the unforeseen.

Conclusions

In conclusion, a note of warning will not be amiss. It is sometimes tempting to use defeatism as a reproach against those who condemn plans that are faulty or policy that is wrong. Yet obstinate persistence in error often requires stalwart opposition that is not in the least defeatist and should not be given an opprobrious name. A community of yes men soon finds itself on the rocks. Even an army with its devotion to discipline requires commanders who speak their mind fearlessly when great issues are at stake.

Generally speaking, defeatism is a distemper which a healthy body politic must shrug off at once. If it is allowed to run on, force may be powerless to eradicate it.

BOOKS OF INTEREST TO THE MILITARY READER

SPACEPORT U.S.A. The Story of Cape Canaveral and the Air Force Missile Test Center. By Martin Caidin. 380 Pages. E. P. Dutton & Co., Inc., New York. $4.95.

BY MAJ LOUIS RACHMELER, *OrdC*

Space and man's indomitable desire to conquer it have become commonplace subjects for discussion throughout the world. It is in this setting that the author tells the complete story of Cape Canaveral and the Air Force Missile Test Center (AFMTC).

A near wilderness of scrub and sand a decade ago has been converted into 15,000 acres of concrete and steel. AFMTC represents the most expensive laboratory of its kind in the Free World with a workshop that extends approximately 5,000 miles down-range into the Atlantic Ocean.

Eyewitness accounts of the tense moments prior to and during a missile launching give the reader an insight into the intricacies involved and the myriad of details that must be integrated for a firing to have any chance for success.

Mr. Caidin at times becomes exuberant in his descriptions of the activities at Cape Canaveral; however, he maintains an objective stand in his detailed account of the "cross currents" of expert opinion existing in the services today as to approaches taken in the development of certain ballistic missile systems.

For those readers who desire a clear, authoritative, and timely account of the Nation's test center for ballistic missiles, this book is heartily recommended.

KŌGUN: The Japanese Army in the Pacific War. By Saburo Hayashi. In collaboration with Alvin D. Coox. 249 Pages. The Marine Corps Assn., Quantico, Va. $4.50.

BY MAJ KEITH C. NUSBAUM, *Arty*

This is an incredible book. It is incredible that so many valuable and interesting facts about the war in the Pacific could be presented in such a small volume. It is incredible in that it presents the grand strategy of the Japanese military masterminds of World War II, a grand strategy that is itself incredible. It is incredible because it outlines the amazing successes which outdated weapons, tenuous supply lines, and divided leadership can achieve when coupled with a determined people.

At the end of the war the author was Military Secretary to the Japanese Minister of War, and probably is one of the few living men who could have had access to the data contained in this book—hence this work is genuine.

Nevertheless, the credence of the reader is strained, for he is told that a country such as Japan entered a war with a major power such as the United States with no idea as to the probable outcome, nor plans to effect one; with no strategy agreed to by both army and navy; and no intelligence which gave any promise of success.

As one of the very few books presenting the Japanese side of the war in the Pacific, this book will serve as an authentic, complimentary adjunct to the more numerous works by Western authors.

THE WARRIORS. Reflections on Men in Battle. By J. Glenn Gray. 242 Pages. Harcourt, Brace & Co., New York. $3.95.

BY MAJ ARLAND WAGONHURST, *Inf*

Man's behavior in war is an impenetrable mystery. His varied emotions know no limits. Destruction and preservation, courage and cowardice, cruelty and kindness —all the dimensions of human nature—fill his daily wartime routine. To a philosophical examination of these human emotions, Mr. Gray devotes his entire manuscript.

This is a modern book, written about mid-20th century soldiers, but its subject is ageless. Hannibal's soldiers at the Battle of Cannae could have been Mr. Gray's "warriors." The spacemen in the battle for Mars might well be. He attempts to convince us "that men will never have peace until they understand why they have sought war." To the reader who has experienced all the emotions of a "warrior," this philosophical analysis is a most convincing treatise. To the reader who has been spared these extremes of human behavior, it will be an enlightening and awesome stimulant.

From his personal experiences as a soldier during World War II, Mr. Gray draws his "reflections." He is blunt yet convincing in his discussions on erotic behavior of the fighting man, and the ruthlessness and kindnesses displayed almost simultaneously by the soldier. He answers the question why battle—even death—seems glorious at times. His conclusions include that "the final secrets of why men fight must be sought beyond the human, in the nature of being itself."

This book is recommended for the inquisitive and the compassionate. For the professional "warrior," it is an indispensable contribution toward self-analysis.

ARMY LADY TODAY. By Helen Todd Westpheling. 100 Pages. Heritage House, Charlotte, N. C. $1.25.

LOGISTICS IN THE NATIONAL DEFENSE. By Rear Admiral Henry E. Eccles, United States Navy, Retired. 347 Pages. The Stackpole Co., Harrisburg, Pa. $5.00.

BY LT COL WALTER HIBBARD, JR., *TC*

At the highest level of command, strategy and logistics are so entwined that they seem to merge. Thus command must see strategy in relation to logistics and must see logistics in relation to strategy.

With this thought in mind, Admiral Eccles describes an important, but often overlooked, aspect of our national security. Backed by extensive operational and logistical experience within naval, joint, and allied command echelons, the author starts his text by outlining the basic considerations of the strategic-logistic-tactical relationship. The concept of logistics as a bridge between our national economy and the operations of our Armed Forces is effectively written and illustrated to serve as a keynote throughout the book.

He identifies and discusses a number of logistic problem areas among which are logistical snowballing, a fourth service of supply, centralization versus decentralization, military versus civilian control, interservice duplication, and the peacetime ratio of service troops to combat troops. No sure-fire panaceas are offered, but the author's constructive criticism, commonsense analysis, and sound conclusions provide the basis for a fuller understanding of these areas.

Admiral Eccles' text effectively ties in the dramatic lessons of World War II and Korea with the nuclear age logistic problems facing today's tactician and logistician.

This is recommended reading for commanders and staff officers of any force who must have personal knowledge of the strengths and weaknesses our Nation's logistical system in order to visualize fully the operational capabilities of their forces.

THE BATTLE OF COWPENS. The Great Morale Builder. By Kenneth Roberts. 111 Pages. Doubleday & Co., Inc., Garden City, New York. $3.50.

BY MAJ RAYMOND O. MILLER, *Inf*

The novelist's approach to history writing has produced a lively account in Kenneth Roberts' finest tradition of Daniel Morgan's famous victory over Tarleton. Word pictures of men, terrain, and action, colored by selected dialogue, give life to this story of the Battle of Cowpens, a fight which Roberts believes may have changed the course of the Revolution.

The prelude to the battle—the hound and hare chase which in January 1781 brought Morgan and his small band of patriots to bay in the South Carolina grasslands known as the Cowpens—is suspensefully and skillfully told. The plans and preparations for battle, especially Morgan's exploitation of the *limitations* as well as the capabilities of his militia units, are described clearly. The account of the thrashing which Morgan's lads gave their British tormentors is stimulating.

THE UNITED STATES IN GERMANY 1944-1955. By Harold Zink. 374 Pages. D. Van Nostrand Co., Inc., Princeton, N. J. $7.50.

BY MAJ EDWIN J. MCCARREN, *Armor*

Planning and administering the occupation of Germany was one of the most challenging international problems ever faced by the United States, and particularly by the Army, as the agency initially responsible for carrying out the national objectives in this area. Further complications resulted from the requirement to operate within the framework of a four-power administration.

With the benefit of much unpublished material concerning the occupation of Germany at his disposal, the author presents a searching analysis of US policies and the manner in which they were implemented. Although he is quite critical of some aspects of the occupation, he presents the pros and cons of the situation with examples to substantiate his views.

This volume is of general interest and value to the military officer because it emphasizes the role of the military in other than purely military actions and contains numerous references to areas in which the military was found lacking in the early phases of the occupation of Germany.

It is of particular interest to the student of civil affairs since it treats each major area of military government activity separately. It also provides liberal references to additional material which has not been widely disseminated.

ROBERT ROGERS OF THE RANGERS. By John R. Cuneo. 308 Pages. Oxford University Press, New York. $6.00.

BY MAJ FRED M. STOWELL, *AGC*

Mr. Cuneo—Yale graduate, Connecticut lawyer, and President of the Norwalk Historical Society—presents in this book a full-scale biography of Robert Rogers in which facts once more surpass fiction.

The author makes Robert Rogers appear as the true hero of the French and Indian War. Loved by his men but often in conflict with authority, court-martialed on a charge of treason, always pursued by his creditors, his career zigzagged erratically from fame to obscurity.

Robert Rogers' extraordinary exploits around Ticonderoga and Crown Point won him fame on two continents, but unequal to the tasks of life after his first moment of glory, he became a derelict of war.

Included in the book are two unusual illustrations, a plan of Fort St. Frederick which is missing from both French and Canadian Archives, and a northeast view of Crown Point which has never been printed before.

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FREE WORLD, AWAKEN! The Veterans of Troop "B" Speak Out on National and World Affairs. By Colonel R. A. Ellsworth, United States Army, Retired. 344 Pages. Exposition Press. Inc., New York. $5.00.

BY MAJ ROBERT C. BURGESS, *Arty*

There is an abundance of writings available today telling us how to solve the world's many problems in words sometimes idealistic, frequently diffuse, rarely easy to read. In such an atmosphere it is refreshing to find a work written in such forthright, direct, and hard-hitting style. Colonel Ellsworth's thesis is simply that if the freedoms Americans really value are to survive the threat of world communism, we must "rise to the challenge and face our problem with renewed dedication to our righteous convictions."

There is little in this book with which the reader will not find himself in either wholehearted agreement or violent disagreement.

INVASION: '44. The Story of D-Day in Normandy. By John Frayn Turner. 248 Pages. G. P. Putnam's Sons, New York. $3.95.

BY MAJ JOSEPH B. LOVE, *Inf*

Author Turner presents a story of the invasion that is varied, broad in scope, and more informative about the British participation than many other books on the great Allied landing. Although *Invasion '44* starts with a résumé of Dunkerque and tells of the vast preparations for returning to France, the majority of the book deals with D-day and the action as seen from company and battalion level. Each beach, from west to east, is viewed in succession—this is jerky and tiresome, but rewarding if read with the aid of a good map. The inclusion of a hundred or so individual and unit incidents which occurred from 0400 to 1200 on 6 June give real flavor to the book and merit the attention of those who want to know "all about" the invasion.

The book does not interpret events, however, and such a momentous decision as setting "unconditional surrender" as the Allied objective is simply announced and raced by. Because of its wide scope, it does not afford comprehensive coverage of all facets of the operation. *Invasion* does, however, contribute to a better understanding of the largest amphibious operation in history. The reader also will find plenty of evidence that a minimum of air or naval reconnaissance could have given the Germans enough warning to have made 6 June a much more grim day.

THE FAILURE OF ATOMIC STRATEGY AND A NEW PROPOSAL FOR THE DEFENSE OF THE WEST. By F. O. Miksche. 224 Pages. Frederick A. Praeger, Inc., New York. $4.50.

Nuclear weapons are too massive ever to be employed in any situation short of a suicide pact, for it is infeasible that a distinction can be drawn between their tactical and strategic employment, so says Colonel Miksche. He proceeds to set up a convincing case to support his contention that the Western Powers have overemphasized the role of nuclear weapons. The author points out that the Soviet Union has not staked her security on the employment of nuclear weapons, for concurrent with their development the USSR has maintained and improved her capability and that of her satellites to employ conventional arms.

Colonel Miksche is a former Czechoslovakian Army officer who left that country when it was occupied by the Germans, and returned only to leave again when the Communists rose to power. He has been a close observer of the struggle between the East and West. *The Failure of Atomic Strategy* evidences the wealth of knowledge and background gained during these observations.

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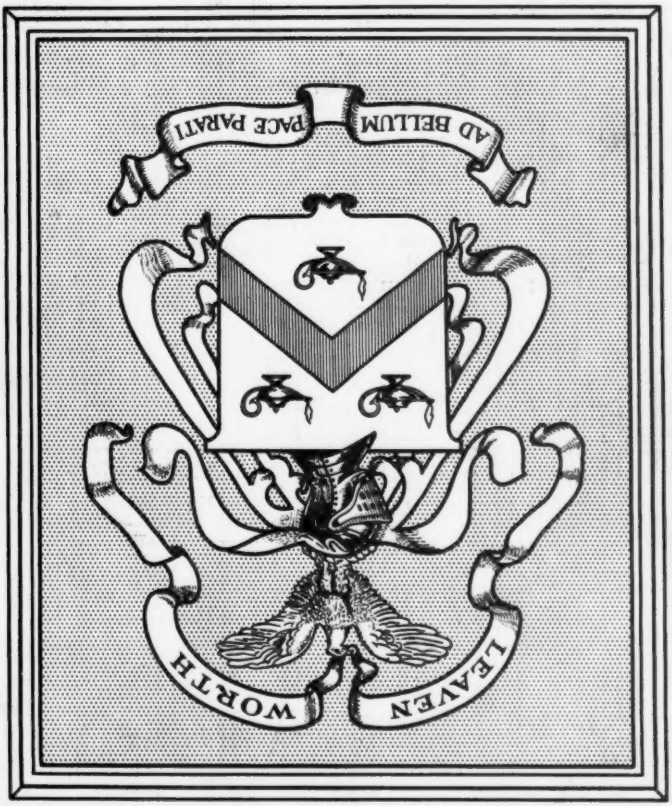
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